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RADIO FREQUENCY (RF) SPECTRUM MANAGEMENT

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This Air Force manual (AFMAN) implements Department of Defense (DoD) Directive (DoDD) 4650.1, *Management and Use of the Radio Frequency Spectrum,* June 24, 1987; Department of Commerce (DoC) National Telecommunications and Information Administration (NTIA) *Manual of Regulations and Procedures for Federal Radio Frequency Management* (*NTIA Manual*); United States Military Communications-Electronics Board (USMCEB) procedures; Air Force Policy Directive (AFPD) 33-1, *Command, Control, Communications, and Computers (C4) Systems*; and Air Force Instruction (AFI) 33-118, *Radio Frequency Spectrum Management.* It details responsibilities and provides guidance and procedures for Air Force management of the radio frequency (RF) spectrum. It assists in system planning, tells how to obtain frequency support for new systems, and lists detailed procedures for frequency allocations and assignments. It applies to all Air Force activities using the RF spectrum, including Air Force Reserve (AFRES), Air National Guard (ANG), and Civil Air Patrol (CAP) units and members. The term "major command" (MAJCOM), as used in this manual, includes field operating agencies (FOA) and direct reporting units (DRU). Names of specific commercial products, commodities, or services included in this publication are for information only and do not imply endorsement by the Air Force. Refer technical questions on the content of this manual to the Air Force Frequency Management Agency, (AFFMA/SCX), 4040 N. Fairfax Drive, Suite 204, Arlington VA 22203-1613. Refer recommended changes and conflicts between this and other publications on an AF Form 847, **Recommendation for Change of Publication**, through channels, to Headquarters (HQ) Air Force Communications Agency, (HQ AFCA/XPPD), 203 W. Losey Street, Room 1065, Scott AFB IL 62225-5224. MAJCOMs, FOAs, and DRUs send one copy of their supplement to HQ AFCA/XPPD.

Chapter 1

INTRODUCTION TO RADIO FREQUENCY SPECTRUM MANAGEMENT

1.1. Terms Explained. Attachment 1 is a glossary of spectrum management references, abbreviations, acronyms, and terms used in this manual.

1.2. Introduction. The RF spectrum is a finite natural resource with many nations and activities competing for its use. As a result, most portions of the RF spectrum are extremely congested, making strict practices and procedures necessary to ensure all valid needs are satisfied. Because RF energy does not respect political or physical boundaries, these practices and procedures are established at the international and national levels to ensure equitable use of the RF spectrum.

1.3. International Frequency Management. The International Telecommunications Union (ITU) is a United Nations organization in which the nations of the world cooperate to improve the use of telecommunications. The International Frequency Registration Board (IFRB) is a permanent part of the ITU charged with documenting frequencies used internationally to provide a degree of protection to users and to aid decisions in conferences. The International Radio Consultative Committee (CCIR) of the ITU studies technical and operating questions relating to radio communications and issues recommendations on them.

1.4. National Frequency Management. *The Communications Act of 1934* established separate control of federal and nonfederal (civil) use of the RF spectrum. Under this act, the only government agencies that assign and control use of frequencies in the United States are:

1.4.1. The NTIA. NTIA, a DoC agency, develops and implements policy for use of the RF spectrum by US Government (federal) radio stations (including DoD stations), and for assigning frequencies to those stations that are within the United States and its Possessions (US&P). NTIA publishes the *NTIA Manual* that governs frequency use within the US&P. The Interdepartment Radio Advisory Committee (IRAC) of the NTIA helps the NTIA Office of Spectrum Management develop and execute policies, programs, procedures and criteria for allocating, managing and using the RF spectrum.

1.4.2. The Federal Communications Commission (FCC). The FCC, which reports to the Congress, regulates frequencies assigned to nonfederal government stations, including those of state and local governments. FCC-regulated frequencies are available to US Government (federal) stations on a case-by-case basis when agreed to by the FCC.

1.5. Department of Defense Frequency Management. The Under Secretary of Defense (Acquisition) (USD[A]) is responsible for establishing policy for acquiring systems that use the RF spectrum and for ensuring compliance with RF spectrum supportability procedures. The Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) (ASD[C3I]) provides overall policy for managing and using the RF spectrum. The main DoD activities involved in frequency management are:

1.5.1. USMCEB. The USMCEB formulates policy and provides direction in military communications-electronics (C-E) matters, including RF spectrum management. The Air Force member of the USMCEB is the Director, Communications and Information (Headquarters United States Air Force [HQ USAF]/SC). The USMCEB Frequency Panel (FP) deals with frequency matters and makes fre-

quency assignments for United States military operations in foreign countries and to support certain NTIA-approved joint operations in the US&P.

1.5.2. The Joint Spectrum Center (JSC). The JSC serves as the DoD focal point for electromagnetic compatibility (EMC) analysis matters in support of the unified commands and Defense agencies.

1.5.3. DoD Area Frequency Coordinator (AFC). The USMCEB set up the DoD AFC system to ensure compatible operation of C-E systems at national service test and training ranges. Each DoD AFC promotes frequency coordination within, and adjacent to, a designated geographical area. The military must coordinate frequency use within a DoD AFC area of responsibility (AOR) (see Attachment 4) with the DoD AFC before start of actual operations.

1.5.4. The Defense Information Systems Agency (DISA). DISA maintains frequency records, analyzes frequency use, and requests assignment of frequencies needed by the Defense Communications System (DCS).

1.5.5. Military Departments. Each service has a senior officer responsible for RF spectrum management. In the United States Army (USA) it is the Director of Information Systems for Command, Control, Communications, and Computers; in the United States Navy (USN) it is the Director for Command, Control, Communications, and Computers; and in the USAF, it is HQ USAF/SC.

1.5.6. HQ USAF. HQ USAF/SC establishes Air Force policy for managing use of the RF spectrum to support the Air Force mission. The AFFMA, a FOA reporting directly to HQ USAF/SC, implements these policies and develops procedures to effectively and efficiently satisfy RF spectrum needs of the Air Force.

1.5.6.1. MAJCOM and using activities responsibilities for management of the RF spectrum are contained in AFI 33-118. You must know and understand Air Force policy, responsibility, and guidance contained in AFI 33-118 before you can effectively apply the procedures contained in this manual.

Chapter 2

FREQUENCY USE IN THE UNITED STATES AND ITS POSSESSIONS

2.1. General. This chapter lists permissible frequency uses within the US&P. Unless otherwise noted, frequency assignments are needed to use specific frequencies. Request assignments according to AFI 33-118 and Chapter 3 of this manual. The *NTIA Manual* is not normally found below MAJCOM level because of its size and complexity. Refer questions concerning it to your MAJCOM.

2.2. Aeronautical Operations (225-400 Megahertz [MHz]) . The channel spacing for frequency bands in the US&P is 25 kilohertz (kHz). The first channel is centered on 225.025 MHz and the last on 399.975 MHz. The channels from 328.6 - 335.4 MHz are allocated only for instrument landing system (ILS) glideslope operations and are controlled by the aeronautical assignment group (AAG). All remaining channels in this band are controlled by the military advisory group (MAG). Fixed multichannel radio relay equipment is not permitted to operate in this band within the US&P, except for tactical exercises or training; or unless demonstrated that its use is the only effective way to satisfy a communications requirement. All air traffic control (ATC) assignments within this band are controlled by the Federal Aviation Administration (FAA). All wideband assignments are contained in the designated wideband allotments in the channel plan. Any bandwidth greater that 25 kHz is considered a wideband requirement.

2.3. Air Traffic Control Frequencies . ATC frequencies are used to control the movement of aircraft (taxiing, departing, and approaching air terminals, and en route in controlled airspace) and are not used for any other purpose. Authorized ground transmitter power is 10 watts for frequencies assigned for ATC flight service station (FSS), terminal, and low-altitude en route facilities. All frequencies used for ATC are assigned and controlled by the Chairman, AAG (FAA). In order for a frequency assignment to qualify for an ATC designation, we must use it for the control and management of the national airspace and we must have a memorandum of understanding or agreement with the FAA.

2.4. Navigational Aid (NAVAID) Frequencies . NAVAIDs help provide safe and efficient operation of civil and military aircraft. All frequency assignments for NAVAIDs are under the control of the Chairman, AAG. Aeronautical NAVAIDs and their allocated frequency bands are:

2.4.1. ILS. The ILS provides guidance for an aircraft on final approach to a runway. Functional components are:

2.4.1.1. Marker beacon. Marker beacons operate on a standard frequency of 75 MHz to indicate a specific location along the final instrument approach.

2.4.1.2. Localizer. The ILS localizer operates in the 108.0 - 117.9875 MHz band and transmits horizontal guidance signals to direct the aircraft to the runway centerline. The localizer also transmits a Morse code airfield identifier consisting of the letter "I" followed by a unique three-letter code.

2.4.1.3. Glideslope. The ILS glideslope operates in the 328.6-335.4 MHz band and transmits vertical guidance signals for descent to the runway. Glideslope and localizer frequencies are paired according to the channeling plan shown in Section 4.3.5 of the *NTIA Manual.*

2.4.2. Microwave Landing System (MLS). The MLS is the International Civil Aviation Organization (ICAO)-approved replacement for the current ILS system. The system is based on time-referenced

scanning beams (TRSB), referenced to the runway, that allow the aircraft to determine precise azimuth angle and elevation angle. The system operates in the 5130-5191 MHz frequency band.

2.4.3. Tactical Air Navigation (TACAN). The normal TACAN system consists of a ground transponder operating in the 962-1024 MHz or 1151-1213 MHz band, and an airborne interrogator operating in the 1025-1150 MHz band. A unique three-letter identifier distinguishes the ground facility. Airborne and ground frequencies are paired to form 126 "X" channels and 126 "Y" channels as shown in Section 4.3.5 of the *NTIA Manual*. In the "X" configuration, the ground reply frequency is 63 MHz less than the airborne frequency for channels 1-63 (low band) and 63 MHz higher for channels 64-126 (high band). In the "Y" configuration, the ground reply frequency is 63 MHz higher than the airborne frequency for channels 1-63 and 63 MHz lower than the airborne frequency for channels 64-126. The Air Force primarily uses "X" channels within the US&P, except for certain air-to-air TACAN operations. TACAN channels 1-16 and 60-69 are reserved for military tactical and training operations, while the remaining 100 "X" channels are used by the common civil-military national airspace system. Ensure procedures governing use of civil TACAN channels for air-to-air operations are followed explicitly.

2.4.4. Very High Frequency (VHF) Omnidirectional Range (VOR). VOR facilities provide bearing information to aircraft and operate in the 108-118 MHz band as shown in Section 4.3.5 of the *NTIA Manual*. Most VORs use voice and Morse code transmissions to identify the ground facility.

2.4.5. TACAN, Distance Measuring Equipment (DME), VOR, or ILS Paired Frequencies. When a TACAN or DME transponder is intended to operate together with a VHF navigational facility (VOR or ILS), the transponder is collocated with the VHF facility and frequency paired with it to form a single, unified NAVAID.

2.4.5.1. The most common unified aid within the Air Force is the VOR tactical air navigation (VORTAC), consisting of a collocated VOR and TACAN facility. Both facilities are located in the same place, transmit simultaneously on a paired channel, and share the same three-letter identifier. If the facilities do not meet the following antenna separation criteria, they are not a single NAVAID and must use unpaired channels and different identifiers. Only the FAA may waive these requirements.

2.4.5.2. For stations used in terminal areas for approach procedures, the separation for a standard VOR antenna and the associated DME or TACAN antenna will not exceed 100 feet. For a Doppler VOR antenna and associated DME or TACAN antenna, separation will not exceed 260 feet.

2.4.5.3. VOR and DME or TACAN antenna separation will not exceed 2,000 feet for facilities providing only en route services.

2.4.6. ATC Radar Beacon System (ATCRBS); Identification, Friend or Foe (IFF); and Selective Identification Feature (SIF). This system operates on the standard transmit frequency of 1030 MHz for the ground interrogator and is normally slaved to an airport surveillance radar (ASR). Airborne transponders reply on 1090 MHz. The power of beacon interrogators used with terminal surveillance radars is normally 300 watts. Beacon ramp tester units will use a pulse repetition rate (PRR) of 230 pulses per second (PPS), triggered for stability, and limited to 4 watts of transmitter power to the antenna. PRRs for ATCRBS, IFF, or SIF are normally the same as, or submultiples of the ASR PRR, but may operate in a staggered mode with an ASR, which operates with a staggered PRR.

2.4.7. Low Frequency (LF) and Medium Frequency (MF) Nondirectional Beacons. Frequencies for LF or MF radiobeacon operations range from 70 to 2000 kHz. The Air Force normally operates in the 200-415 kHz bands within the US&P.

2.4.8. Aeronautical Radio Navigation Radar. The bands 1240-1370 MHz (used for long range radar [LRR]), 2700-2900 MHz (used for ASR), and 9000-9200 MHz (used for precision approach radar [PAR]) are allocated to the aeronautical radionavigation service on a primary basis. In certain areas of the US it is difficult to accommodate new radars in the 2700-2900 MHz band. Radar systems complying with Criteria D of the radar spectrum engineering criteria (RSEC), under Part 5.3 of the *NTIA Manual*, can incorporate additional EMC features when intended for use in designated heavily used areas, or for collocated operations with other radars. The FAA regional frequency manager and the agency asking for the assignment assess the need for these additional EMC features when coordinating a frequency assignment in the 2700-2900 MHz band. Frequency assignments for those radars without the additional EMC features installed will contain record note S373.

2.4.9. Long-Range Aid to Navigation (LORAN). LORAN C stations operate in the 90 to 110 kHz frequency band. All stations use a center frequency of 100 kHz with different PRRs. The six basic PRRs are: H (33-1/3 PPS), L (25 PPS), S (20 PPS), SH (16-2/3 PPS), SL (12-1/2 PPS), and SS (10 PPS).

2.5. Telemetry Frequencies . The following bands are allocated for telemetering operations in aeronautical vehicles, upper atmosphere research devices, guided missiles, space system boosters, and space vehicles:

2.5.1. The 1435-1535 MHz and 2310-2390 MHz bands.

2.5.1.1. Assignments are centered on frequencies at standard intervals of 1 MHz, beginning at 1435.5 and 2310.5 MHz, respectively, and are allowed bandwidths of 1, 3, or 5 MHz. Assignments with bandwidths greater than 1 MHz are centered so they do not extend outside the allocated bands.

2.5.1.2. Ninety-nine (99) 1-MHz channels within the 1435-1535 MHz, and 79 1-MHz channels within the 2310-2390 MHz bands are designated primarily for telemetering and associated telecommand during the flight testing of aircraft, missiles, or of their major components (station classes MOEA, FLEA, MOD, FLD apply).

2.5.1.3. Frequencies 1444.5, 1453.5, 1501.5, 1515.5, 1524.5, and 1525.5 MHz are shared with flight telemetering mobile stations (station classes MOEB, FLEB, MOD, FLD apply).

2.5.1.4. Telemetry associated with launching and reentry into the Earth's atmosphere, as well as incidental orbiting before reentry of occupied objects undergoing flight tests, is also allowed within these bands (station classes MOEA, FLEA, MOD, FLD apply).

2.5.1.5. Telecommand stations authorized to operate in these bands must directly support telemetering functions. Assignments are limited to 1 MHz bandwidth and must use antennas having a half-power beamwidth of no more than 8 degrees, and a front-to-back ratio of at least 20 decibels (dB).

2.5.1.6. Channels designated for aeronautical telemetering in the 1435-1535 MHz band are also available for space telemetering on a shared basis.

2.5.1.7. The 1530-1535 MHz band is allocated primarily to maritime mobile (MM) satellite service; mobile aeronautical telemetry is secondary.

2.5.2. The 2200-2290 MHz band has 90 1-MHz narrowband channels beginning at 2200.5 MHz in 1-MHz increments through 2289.5 MHz.

2.5.2.1. Emission bandwidths greater than 1 MHz are permitted, provided the assigned frequencies are centered on the center frequencies of narrowband channels, and do not extend outside the allocated band.

2.5.2.2. These channels are available for:

2.5.2.2.1. Telemetering from space research stations.

2.5.2.2.2. Aeronautical telemetering, including telemetry associated with launch vehicles, missiles, and upper atmosphere research rockets, on a coequally shared basis with fixed and mobile line-of-sight (LOS) operations.

2.5.2.3. No provision is made in this band for flight testing of piloted aircraft.

2.6. International Distress and Emergency Frequencies . The United States Government and DoD have adopted the international distress and emergency frequencies shown in Table 2.4. Frequency assignments are not required. These frequencies are used primarily by stations operating in the maritime and aeronautical mobile service. If a mobile station in distress is unable to make contact on emergency frequencies, it may use any available means to obtain help. Policies for using these frequencies are:

2.6.1. Emergency Broadcasts. Send distress calls or messages only on the authority of the person responsible for the ship, aircraft, or other vehicle carrying the mobile station. The emergency frequencies are used only for actual emergencies and not for simulated emergency training.

2.6.2. Testing Restriction. Do not radiate when testing an emergency frequency during experimental, production, or maintenance operations. Make operational checks to ensure proper system operation (confidence checks) no more than once in any 24-hour period, and keep them as short as possible. Activities completing a communications contact on equipment used for emergency purposes will consider the contact the confidence check for that period. Make confidence checks only with stations authorized to operate on the particular emergency frequency. Do not transmit "in the blind" for confidence checks.

2.7. Air Force Boat Frequencies . Air Force boats operating within the continental United States (CONUS) use the frequencies shown in Table 2.4. Use these frequencies for the indicated purpose without further assignment, except for 4835 kHz. Use of 4835 kHz requires the normal request procedures contained in Chapter 4. AFFMA can authorize variations in the use of these frequencies to meet local communications needs. Table 2.4 is not authority to obtain additional equipment.

2.8. Standard Frequency and Time Broadcasts . Frequencies are nationally and internationally allocated and assigned for specific stations to broadcast time and frequency signals for setting chronometers and calibrating frequency-sensitive equipment. The standard frequencies are 60 kHz and 2.5, 5, 10,15, 20, and 25 MHz. The following are key points about the national and international standard broadcasts with additional information listed in Table 2.1:

2.8.1. U.S. Standard Broadcasts. The National Bureau of Standards (NBS), U.S. Department of Commerce, operates two high frequency (HF) radio stations: WWV near Fort Collins CO, and WWVH at Kauai HI.

2.8.1.1. Each broadcasts highly accurate frequency and time signals.

2.8.1.2. The transmitted frequencies of both stations are accurate to within one part in 100 billion.

2.8.1.3. NBS also operates an LF station, WWVB, near Fort Collins CO.

2.8.1.4. These three stations are used to coordinate the global networks of missile and satellite stations.

2.8.1.5. They assist government and private efforts requiring accurate time and frequency information, and improve the uniformity of frequency measurement nationally and internationally.

2.8.1.6. They provide an accurate frequency standard, easily available to many users, for electronic research and development.

2.8.2. Other Standard Broadcasts. Many radio stations throughout the world broadcast standard time and frequency signals. Two of the most widely known and used are:

2.8.2.1. The Canadian Dominion Observatory in Ottawa, Ontario continuously broadcasts standard frequency and time signals over station CHU.

2.8.2.2. The Tokyo Astronomical Observatory broadcasts standard time and frequency signals over station JJY.

Table 2.1. Standard Time and Frequency Stations.

STATION	**GEOGRAPHIC COORDINATES**		FREQUENCIES
WWV	40× 40' 40" 104½ 02' 27"	North Latitude West Longitude	2.5, 5, 10, 20, 25 MHz
WWVB	40½ 40' 28.3" 105½ 02' 39.5"	North Latitude West Longitude	60 kHz
WWVH	21½ 59' 26" 159½ 46' 00"	North Latitude West Longitude	2.5, 5, 10, 15, 20, 25 MHz
CHU	45½ 18' 00" 079½ 45' 00"	North Latitude West Longitude	3.330, 7.335, 14.670 MHz
JJY	35½ 42' 00" 139½ 31' 00"	North Latitude West Longitude	2.5, 5, 10, 15 MHz

2.9. Department of Defense Use of Frequencies in Nongovernment Bands . The military may use some frequencies allocated for nongovernment use on a secondary, noninterference basis (NIB) as outlined below. These frequencies are used only when government bands will not satisfy frequency needs and when use does not cause interference to nongovernment users. The military must accept any interference caused by nongovernment authorized users. Military use of a frequency will not bar new nongovernment assignments on that or adjacent frequencies.

2.9.1. Peacetime Tactical and Training.

2.9.1.1. The 4-27 MHz band. Air Force activities may use frequencies allocated to the MM service and the broadcast service as listed in Table 2.6. This use is only for peacetime military tactical and training purposes within the US&P. Assignment authority in these bands and allocations are delegated to the MAJCOM spectrum management office. An assignment in either the government master file (GMF) or the Frequency Resource Records System (FRRS) is not required. Instead, MAJCOMs will implement procedures to track assignments within their respective command to include unit, location and inclusive dates (not to exceed one year). Either spot frequency or band assignments are authorized. MAJCOMs may not use this authority to circumvent normal assignment procedures for fixed terrestrial systems or HF networks.

2.9.1.2. Normal use of this authority is to support training operations and field operations around an installation/exercise area where the type of equipment is either portable or transportable. Aeronautical mobile operations are strictly prohibited.

2.9.1.3. Users will limit transmitter power to the minimum necessary for reliable communications and will not exceed the power for specific types of emissions as shown in Table 2.6.

2.9.1.4. When notified by the FCC, or other authority, that an Air Force transmission is interfering with a MM or broadcast station, the Air Force station will cease operation on that frequency.

2.9.1.5. Air Force users may receive interference from authorized users of these bands, and will not try to obtain relief from such interference at any level of command; however, the user can ask for a replacement frequency through normal spectrum management channels.

2.9.2. Nongovernment bands above 25 MHz.

2.9.2.1. The military services may use frequencies in the nongovernment bands above 25 MHz, as shown in Table 2.6, after coordination with FCC field personnel.

2.9.2.2. Military use of these frequencies will not bar present or future assignments of nongovernment frequencies to nonmilitary government agencies through normal IRAC/FCC coordination.

2.9.2.3. The military will protect specific nongovernment frequencies authorized for government agencies.

2.9.2.4. Chapter 3 contains procedures for using these frequency bands.

2.9.3. Military Test Range Operations. The FCC and the military services have arranged for the military use of nongovernment bands at certain military test ranges. Table 2.6 shows the frequencies to use. Chapter 3 contains procedures for requesting use of these frequencies.

2.9.3.1. Do not use these frequencies if government bands can satisfy frequency needs.

2.9.3.2. Limit use of these frequencies to those intermittent operations that you can stop immediately upon notification that they are causing harmful interference.

2.9.3.3. Do not use these frequency bands to develop military systems that may need a new frequency allocation. Obtain frequency support for new system development according to AFI 33-118 and Chapter 5 of this manual.

2.9.3.4. At certain military test ranges, MAJCOMs may authorize peacetime military use of nongovernment frequencies in the 25-2400 MHz band after coordination with FCC field personnel, provided there is no harmful interference to nongovernment operations. Military test ranges are listed in Attachment 4.

2.9.4. Amateur Frequencies. The military services may not use amateur frequencies within the US&P during normal peacetime conditions, except as authorized by NTIA or FCC. Use frequencies and emissions shown in Table 2.4 in emergency areas to make initial contact with Radio Amateur Civil Emergency Services (RACES) stations. Also use these frequencies to communicate with RACES stations on matters requiring coordination.

2.9.5. Citizen Band (CB) Radio Service. All Air Force CB stations must operate in accordance with FCC *Rules and Regulations*, Part 95, Subpart D.

2.9.5.1. The AFFMA has US&P assignments authorized by the FCC for Air Force permissible operations as follows:

2.9.5.1.1. An Air Force law enforcement agency may communicate with the motoring public on and around an installation for the purpose of providing emergency assistance to the public. The Air Force must use CB Channel 9 for this purpose and appropriately place signs along installation roadways announcing this service.

2.9.5.1.2. An Air Force emergency vehicle using public highways for travel or guarding military convoys may communicate with the motoring public and civil authorities en route.

2.9.5.1.3. An Air Force convoy traveling on public highways may communicate with the motoring public and civil authorities en route. The convoy commander or designated representative should operate the radio.

2.9.5.1.4. Only Air Force employees may operate the equipment.

2.9.5.2. Do not use CB radio service to conduct military-related communications, or use instead of obtaining an Air Force frequency assignment to operate on an appropriate system or network designed for the mission.

2.9.5.3. Spectrum managers will not submit individual frequency requests for assignment action, and will grant authorization to installation users in accordance with the above rules under the authority of the Air Force US&P assignments documented in the GMF.

2.10. Commercial Broadcast Frequencies . The military services are not authorized to operate any commercial broadcast facility within the US&P, except in a few select circumstances. Exceptions are Travelers Information System amplitude modulation (AM) broadcast stations that are licensed through the FCC. These stations are noncommercial and are generally restricted to bulletin board-type information such as available installation facilities, travel restrictions, and driving hazards. In certain locations, the FCC may permit the operation of an Armed Forces Radio and Television Service station if a commercial station does not provide service to the area.

2.11. Land Mobile Radio (LMR) Systems and Pagers . LMR and pager systems in the US&P use the 29.89-50, 138-144, 148-150.8,162-174, and 406-420 MHz bands. The following conditions, restrictions, and special provisions apply:

2.11.1. Both government and nongovernment agencies share the 29.89-50 MHz band.

2.11.1.1. Military and nonmilitary agencies share the government use of the band.

2.11.1.2. Because of extensive use, available frequencies are very limited.

2.11.1.3. Channels are in 20 kHz increments, beginning with 29.90 MHz.

2.11.1.4. The joint military common frequency for calling and emergency communications within the US&P is 40.5 MHz. An assignment is not needed to use this frequency.

2.11.2. Only the military services use frequencies in the 138-144 MHz band.

2.11.2.1. Channels are in 25 kHz increments beginning with 138.025 MHz.

2.11.3. The 148-150.8 MHz band is now reallocated for nongovernment mobile-satellite (Earth-to-space) operations, on a shared basis with government stations. A portion of this band, 149.9-150.5 MHz, is allocated to this service on a primary basis effective 1 January 1997. Therefore, Air Force will not apply for any new frequency assignments to support LMR operations in this spectrum. Operations currently using the band may continue to do so for the duration of the equipment's life-cycle. Due to expected heavy satellite utilization in this band, Air Force users are encouraged to move their operations to other LMR bands when practical.

2.11.4. Nonmilitary government agencies are the primary users of the 162-174 MHz band.

2.11.4.1. Channels are in 25 kHz increments beginning with 162.025 MHz.

2.11.4.2. Because this band is extremely congested, the Air Force will satisfy new LMR and pager requirements from other frequency bands.

2.11.4.3. After 1 January 2005, all equipment in the 162-174 MHz band must operate within a 12.5 kHz channel according to Chapters 4 and 5 of the *NTIA Manual*.

2.11.4.4. Assignments in the 162-174 MHz band are only made when:

2.11.4.4.1. The frequency is needed for dual-channel operation with an existing net that operates in the 162-174 MHz band.

2.11.4.4.2. The frequency of a net operating in the 162-174 MHz band must be changed because of interference problems.

2.11.4.4.3. An existing 162-174 MHz frequency assignment is shared with another unit at the same location.

2.11.5. Nonmilitary agencies primarily use the 406-420 MHz band.

2.11.5.1. Frequencies are channeled in 25 kHz increments, beginning with 406.125 MHz.

2.11.5.2. The Air Force and Army share two sub-bands (407.225-407.575 and 412.825-413.575 MHz) which are used for assignment with a necessary bandwidth not to exceed 16 kHz.

2.11.6. LMR trunking systems to support government agencies (including military) are being developed to operate in the 406-420 MHz band.

2.11.7. The band 1350-1400 MHz is also available for development of trunking systems.

2.11.8. Spectrum Planning Subcommittee (SPS) approval is required for all trunked systems. All Air Force trunked systems will:

2.11.8.1. Use a method of priority access.

2.11.8.2. Not interconnect systems with five or less channels to telephone systems. For systems with more than five channels, use only one interconnection to the telephone system for each five channels.

2.11.8.3. Not use more than three interconnections for any size system.

2.11.8.4. Minimize the use of links that require a dedicated (non-shared) channel for the duration of a connection.

2.11.8.5. Use a hard-copy system to monitor trunked systems with more than five channels.

2.11.8.6. Have a capability to rapidly restructure the system (for example, priorities, groupings, etc.) through software control.

2.11.8.7. Submit annual trunking usage reports (RCS HAF-SC(A)9610) to the MAJCOM spectrum manager with an information copy to the MAJCOM LMR manager. MAJCOMs consolidate their trunking reports and send to AFFMA by 5 January of each year. A MINIMIZE CONSIDERED statement is not required for this report. Reports will contain the following information (**NOTE:** This report is designated emergency status Code D. Immediately discontinue reporting data requirements during emergency conditions):

2.11.8.7.1. Agency.

2.11.8.7.2. Location.

2.11.8.7.3. Agency serial numbers of the assigned frequencies.

2.11.8.7.4. Number of frequency channels (frequency pairs) assigned.

2.11.8.7.5. Manufacturer of the equipment.

2.11.8.7.6. Type of encryption used, if any.

2.11.8.7.7. Number of fixed, mobile (permanently mounted in vehicles), and hand-held units.

2.11.8.7.8. Number of telephone trunks connected to the system.

2.11.8.7.9. Data for the busiest hour during the week specified: number, average duration, and average delay of dispatch calls; number and average duration of dedicated-link calls; number and average duration of telephone calls; and the number of busy signals (all modes).

2.11.9. Cellular systems operate on nongovernment frequencies. National regulations do not permit assignment of these frequencies to government agencies (including military). Air Force activities requiring cellular service must contract through a local carrier. Frequency authorization for cellular service is an FCC and local carrier function.

2.11.9.1. Frequency assignments are not required for cellular telephone service leased according to AFI 33-111, *Telephone Systems Management*; however, you must consider EMC with other use of the RF spectrum.

2.11.10. Some foreign countries are changing to 12.5 kHz channelization in the ultra high frequency (UHF) LMR bands, with 8.5 kHz as the authorized emission bandwidth. These countries are not allowing 16 kHz emission bandwidths beyond announced effective dates, even on a temporary basis.

2.11.11. To standardize pager frequencies and allow for interchange of equipment among Air Force installations, all pager frequency assignments are in the 138-144 MHz band unless use of another band is needed for operational reasons.

2.11.12. Realignment of off-channel LMR frequency assignments is governed by a USMCEB 25 kHz channeling plan in the 138-150.8 MHz band.

2.11.12.1. Adjust existing assignments within the US&P that do not conform with the 25 kHz channeling plan (for example, 148.065 or 150.195) as soon as possible.

2.11.12.2. Spectrum managers at all levels of command should look for practical, economical opportunities to realign such off-channel frequency assignments.

2.11.12.3. The following special provisions apply to Air Force users of LMR frequencies not conforming to the USMCEB 25 kHz channeling plan:

2.11.12.3.1. When an Air Force unit is planning to replace off-channel equipment, the commander must determine whether to obtain an on-channel frequency assignment before the equipment is ordered.

2.11.12.3.2. When an off-channel LMR net is receiving interference from an on-channel system, and a frequency change is the most economic way to solve the problem, change the off-channel net.

2.11.12.3.3. If all the equipment on an off-channel net is turned in, delete the frequency assignment immediately. Do not reserve the off-channel frequency assignment for a new unit.

2.12. Maritime Mobile Frequencies . The 156-162 MHz band is allocated primarily for nongovernment MM communications. The government can use certain channels as outlined below:

2.12.1. Use frequency 156.3 MHz (Channel 6) for 9 inter-ship simplex communications. Coast stations may use this channel during emergencies affecting life or property.

2.12.2. Frequency 156.8 MHz (Channel 16) is the international MM distress, safety, and calling frequency.

2.12.3. Frequency 157.1 MHz (Channel 22) is the primary frequency for liaison communications between ship stations and United States Coast Guard stations.

2.12.4. The channels in the MM band are reserved for communications between vessels and designated commercial marine operators and for nongovernment ship-to-shore and inter-ship operations. Government stations may request the use of specific channels on a case-by-case basis if they have a valid need to communicate with the affected nongovernment licensees.

2.13. Air Force Experimental Radio Stations . Air Force experimental radio stations listed in **Attachment 4**, paragraph A4.5, may use any RF for short or intermittent periods without authorizations under the following conditions:

2.13.1. Operations are confined to the immediate vicinity of the station.

2.13.2. The nature or duration of the requirement makes assignment of specific frequencies impractical.

2.13.3. All reasonable measures are taken before using frequencies to prevent harmful interference to authorized users. Otherwise, operations must terminate.

2.13.4. RF use is limited to being an integral part of experimental work and will not be used for administrative or operational purposes.

2.13.5. The following frequency bands are excluded from use:

Table 2.2. Frequency Bands Excluded From Use.

kHz	MHz	GHz
490.0-510.0	73.0-74.6	10.68-10.70
2173.5-2190.5	121.4-121.6	15.35-15.40
8354.0-8374.0	156.7-156.9	23.60-24.00
21850.0-21870.0	242.8-243.2	31.20-31.50
	1400.0-1427.0	52.00-54.25
	2690.0-2700.0	58.00-59.00
	4990.0-5000.0	64.00-65.00
		86.00-92.00
		101.00-102.00
		130.00-140.00
		182.00-185.00
		230.00-240.00

2.14. Non-Licensed Devices . Air Force activities will not use non-licensed equipment for critical tactical or strategic command and control applications essential for mission success, protection of human life, or protection of high-value assets. Exercise caution in procuring and using non-licensed devices.

2.14.1. You may purchase and use devices with less than one watt transmit power within the US&P without a frequency assignment under the following conditions:

2.14.1.1. You confirm with the technical criteria in Annex K of the *NTIA Manual* (Part 15, **Devices**).

2.14.1.2. Users understand that operations are on an unprotected, NIB, and they must live with any interference received.

2.14.1.3. You stop operations immediately in the event of interference to established services.

2.14.2. Devices with a transmit power equal to or greater than one watt should have a summary of the technical parameters (for example, power output, bandwidth, operating band, etc.) submitted through command channels for frequency assignment determination.

2.14.3. Devices that operate near 18 gigahertz (GHz) that require frequency protection or whose emissions exceed the limits stated in Annex K of the *NTIA Manual* require spectrum certification and frequency assignment through command channels.

2.15. Industrial, Scientific, and Medical (ISM) Equipment. Assignments are not required to operate ISM equipment in the US&P under the following conditions:

2.15.1. Operation on the following designated ISM frequencies:

Table 2.3. Industrial, Scientific, and Medical Frequencies.

FREQUENCY	PLUS OR MINUS
6780 kHz	15.0 kHz

FREQUENCY	PLUS OR MINUS
13560 kHz	17.0 kHz
27120 kHz	163.0 kHz
40.68 MHz	20.0 kHz
915.0 MHz	13.0 MHz
2450.0 MHz	50.0 MHz
5800.0 MHz	75.0 MHz
24.125 GHz	25.0 MHz
61.25 GHz	250.0 MHz
122.5 GHz	500.0 MHz
245.0 GHz	1.0 GHz

2.15.2. Terminate use of ISM equipment, or take steps to resolve interference, when interference is caused to authorized frequency users outside the ISM frequency limits.

2.15.3. Additional limits and conditions are given in Section 7.10.1 of the *NTIA Manual.*

2.15.4. Operation on Non-ISM Frequencies. Operate on non-ISM frequencies according to Section 7.10.2 of the *NTIA Manual.*

2.15.5. Operation on the following safety, search and rescue (SAR) frequency bands is prohibited: 490-510 kHz, 2170-2194 kHz, 8354-8374 kHz, 121.4-121.6 MHz, 156.7-156.9 MHz, and 242.8-243.2 MHz.

2.16. Weather Radars . Weather radars operating in the 2700-2900 and 5350-5650 MHz frequency bands that use conventional magnetron output tubes have inherent spurious emission levels that may cause radio frequency interference (RFI) to digital radio-relay microwave systems. Existing radars in the category include the WSR-57, WSR-74S, WSR-74C, AN/FPQ-21, and the AN/FPS-77. You must install RF waveguide filters that reduce the spurious emission levels by at least 40 dB before using these radars at a new location.

Table 2.4. Emergency Frequencies.

SERVICE	FREQUENCY (EMISSION)	COMMUNICATION SERVICE	FUNCTION
International Distress and Emergency	500 kHz	Aeronautical, Maritime, Survival Craft	Distress (Telegraphy)
	2182 kHz	Aeronautical, Maritime, Survival Craft	Distress
	8364 kHz	Aeronautical, Maritime	Search and Rescue (SAR)
	121.5 MHz	Aeronautical	Emergency and Safety
	156.8 MHz	Maritime	Call, Reply, and Safety
	243.0 MHz	Military Aeronautical	Emergency, Survival

SERVICE	FREQUENCY (EMISSION)	COMMUNICATION SERVICE	FUNCTION
	406-406.1 MHz	Mobile-Satellite	Emergency Position -Indicating Radiobeacon (EPIRB)
Air Force Boats (CONUS only)	2670 kHz (6K00A3E)	Coast Guard Stations	Emergency Coordination
	2182 kHz (6K00A3E)	Coast Guard Stations	Emergency Coordination (Great Lakes area only)
	4835 kHz (6K00A3E) (100H00A1A)	Crash Boats and Shore Stations	General - as required
	8364 kHz (100H00A1A)	Ships and Coastal Stations	Emergency
	121.5 MHz (6K00A3E)	Aircraft	Emergency
	123.1 MHz (6K00A3E)	Search Vehicles, Aircraft, and Vessels	Scene of SAR
	243.0 MHz (6K00A3E)	Aircraft	Emergency
	282.8 MHz (6K00A3E)	Aircraft	Joint Scene of SAR.
Radio Amateur Civil Emergency Services (RACES)	3997 kHz (6K00A3E)	RACES Stations	Civil Emergency
	3998.6 kHz (3997 kHz) (3K00H3E)		
	53.3 MHz (36K00F3E)		

Table 2.5. Allowable Frequencies, Emissions, and Power Levels in the 4-27 MHz Maritime, Mobile,

and Broadcast Service Bands.

FREQUENCY BANDS (kHz)	EMISSION	MAXIMUM POWER
4005-4063 kHz 5950-6200 kHz 9500-9900 kHz 11650-12050 kHz 13600-13800 kHz 15100-15600 kHz 17550-17900 kHz 21450-21850 kHz 25670-26100 kHz	1K10F1B	100 watts mean
	100HA1A	200 watts mean
	3K00J3E	250 watts mean
	2K00A2B	300 watts mean
	3K00J7B 4K00J7B	400 watts mean
	3K00J9W 4K00J9W 6K00J9W	600 watts mean
	6K00B9W	800 watts mean

Table 2.6. Military Frequencies in Nongovernment Bands.

Peacetime Tactical and Training Frequency Bands		
Frequency Bands (MHz)	**Nongovernment Use**	**Remarks**
54.0-72.0 MHz	Domestic Broadcasting Service	
76.0-100.0 MHz		Except Alaska
100-108 MHz 470-60 MHz 174-216 MHz 614-890 MHz		

Peacetime Tactical and Training Frequency Bands		
Frequency Bands (MHz)	**Nongovernment Use**	**Remarks**
25.01-25.33 MHz 150.800-152.000 MHz 26.96-27.54 MHz 152.240-152.480 MHz 29.70-29.80 MHz 152.840-156.250 MHz 30.56-32.00 MHz 156.325-156.625 MHz 33.00-34.00 MHz 156.675-156.725 MHz 35.00-35.20 MHz 156.875-157.025 MHz 35.68-36.00 MHz 157.450-157.740 MHz 37.00-38.00 MHz 158.100-158.460 MHz 39.00-40.00 MHz 158.700-161.775 MHz 42.00-43.20 MHz 173.200-173.400 MHz 43.68-46.60 MHz 451.000-454.000 MHz 47.00-49.60 MHz 456.000-459.000 MHz 460.000-470.000 MHz	Public Safety, Citizens Radio, Industrial, Land Transportation, and Maritime Mobile	
26.95-26.96 MHz 29.80-29.89 MHz 29.92-30.00 MHz	Nongovernment Fixed Services (excluding common carrier)	
25.85-26.80 MHz 152.850-153.350 MHz	Auxiliary Broadcasting Service	
160.860-161.400 MHz		Puerto Rico and Virgin Islands only
161.625-161.675 MHz		Except Puerto Rico and Virgin Islands
450.0-451.0 MHz 942.0-952.0 MHz 455.0-456.0 MHz 1990.0-2110.0 MHz		
72.0-73.0 MHz 75.4-76.0 MHz	Nongovernment Fixed Services (excluding common carrier)	

Peacetime Tactical and Training Frequency Bands		
Frequency Bands (MHz)	**Nongovernment Use**	**Remarks**
76.0-100.0 MHz		In Alaska
952.0-960.0 MHz 2130.0-2160.0 MHz 1850.0-1990.0 MHz 2180.0-2200.0 MHz		
28.0-29.7 MHz 42.0-450.0 MHz 50.0-54.0 MHz 1215.0-1300.0 MHz 144.0-148.0 MHz 2300.0-2310.0 MHz 220.0-225.0 MHz 2390.0-2450.0 MHz	Amateur Operations	Amateur operations are through 2400 MHz only
Military Test Ranges Frequency Bands		

Peacetime Tactical and Training Frequency Bands		
Frequency Bands (MHz)	**Nongovernment Use**	**Remarks**
15.01-25.33 MHz 4.0-148.0 MHz 25.85-26.48 MHz 150.80-156.25 MHz 26.95-27.54 MHz 156.35-156.70 MHz 28.00-29.89 MHz 156.90-157.0375 MHz 29.91-30.00 MHz 157.1875 MHz 30.56-32.00 MHz 162.0125 MHz 33.00-34.00 MHz 174.00-216.00 MHz 35.00-36.00 MHz 450.0-608.00 MHz 37.00-38.00 MHz 614.00-890.00 MHz 39.00-40.00 MHz 942.00-960.00 MHz 42.00-46.60 MHz 1850-2110 MHz 47.00-49.60 MHz 2450-2690 MHz 50.00-73.00 MHz 425-7125 MHz 75.40-108.00 MHz 10550-10680 MHz 11700-13250 MHz		

Chapter 3

UNITED STATES AND POSSESSIONS FREQUENCY ACTIONS

3.1. General Procedures.

3.1.1. Frequency Request and Approval Channels. AFI 33-118 explains the command channels used for frequency actions. Send US&P frequency actions through the appropriate MAJCOM to AFFMA as follows:

3.1.1.1. The installation spectrum manager sends:

3.1.1.1.1. Host installation unit actions to the host MAJCOM.

3.1.1.1.2. Tenant unit actions that support the host installation mission to the host MAJCOM, even if the tenant is the sole user of the frequency, with a copy to the tenant unit's MAJCOM.

3.1.1.1.3. Tenant unit actions not in support of the host installation mission to the supported unit's MAJCOM with a copy to the host and tenant unit MAJCOMs. For example:

- Send a frequency action for an Air Combat Command (ACC) maintenance expediter net on a Air Mobility Command (AMC) installation to ACC with a copy to AMC.
- Send a frequency action for an Air Force Materiel Command (AFMC) unit in support of ACC on an AMC installation to ACC with a copy to AFMC and AMC.

3.1.1.2. CONUS MAJCOMs send frequency actions in Standard Frequency Action Format (SFAF) for their units deploying outside the US&P to the Air Force component of the theater unified command. For example, ACC sends frequency actions to the Pacific Air Forces (PACAF) for a fighter wing deploying to the Pacific Area (Commander-in-Chief, Pacific Command [CINCPAC]). PACAF, in turn, processes these actions according to theater procedures.

3.1.1.3. CONUS MAJCOM units in an overseas area send actions according to theater policy.

3.1.1.4. Send frequency actions to support operations for the Commander-in-Chief, Special Operations Command (CINCSOC), Commander-in-Chief, Space Command (CINCSPACE), Commander-in-Chief, Transportation Command (CINCTRANS), or Commander-in-Chief, Strategic Command (CINCSTRAT), through the appropriate MAJCOM to the AFFMA for coordination with the USMCEB FP.

3.1.1.5. Send frequency actions for these worldwide operations through the MAJCOM to AFFMA for coordination through the appropriate theater CINC and assignment by the host nation:

3.1.1.5.1. Space systems (excluding in-theater tactical assets).

3.1.1.5.2. Down-range missile tests.

3.1.1.5.3. MYSTIC STAR/White House Communications Agency.

3.1.1.5.4. Worldwide airborne national command posts.

3.1.1.5.5. Military Affiliate Radio System(MARS) (for circuits terminating in US&P).

3.1.1.5.6. Global Command and Control System (GCCS) HF stations.

3.1.1.6. ANG, AFRES, and CAP units:

3.1.1.6.1. Submit actions to support all day-to-day operations, training requirements, fixed ATC and NAVAIDS at operating bases and permanent training sites, through appropriate channels to the ANG Readiness Center (ANGRC), HQ AFRES, or HQ CAP, for forwarding to AFFMA.

3.1.1.6.2. Submit requests in support of training, exercise, or readiness inspections, through the tasking agency to AFFMA.

3.1.1.6.3. ANG units submit actions to support state-levied mission taskings through appropriate channels to The Adjutant General (TAG). TAG sends them according to state directives to the FCC Safety and Special Radio Services Bureau.

3.1.1.7. USAF MARS activities:

3.1.1.7.1. Submit actions for MARS VHF nets on a military installation or on outlying locations hosted by an installation through the host-installation spectrum manager to the host MAJCOM. MAJCOMs coordinate with the Chief, USAF MARS (HQ AFCA/SYXR) to ensure the net has been authorized before sending the action to AFFMA.

3.1.1.7.2. Civilian affiliate stations send frequency actions to the state MARS director. The state MARS director sends actions to the region communications manager, who, in turn, sends it to the Chief, USAF MARS. If the net is approved, the Chief, USAF MARS will send the frequency action to AFFMA.

3.1.1.7.3. The Chief, USAF MARS and AFFMA coordinate HF actions. HF assignments are made on a regional basis and authority for station operation is AFI 33-106, *Managing High Frequency Radios, Land Mobile Radios, Cellular Telephones, and the Military Affiliate Radio System*. No formal action is required.

3.1.1.8. Civil Air Patrol (CAP). The CAP is a civilian organization supported by the Air Force according to AFI 36-5001, *Organization and Function of the Civil Air Patrol*. CAP units send frequency actions that support Air Force operations and training, whether in whole or in part, through HQ Air Education and Training Command (AETC) to AFFMA. In addition, by agreement between HQ CAP and USAF MARS, CAP and USAF MARS share certain VHF repeater frequencies.

3.1.1.8.1. AFFMA may assign CAP frequencies for Air Force units to communicate with the CAP during training activities and SAR operations.

3.1.1.8.2. Air Force units may allow CAP to use their assigned frequencies to communicate with other Air Force units during SAR missions.

3.1.1.8.3. CAP units give the installation spectrum manager a list of frequencies used on the installation.

3.1.2. Frequency Coordination. Coordinate frequency actions as follows:

3.1.2.1. Aerospace and Flight Test Radio Coordinating Council (AFTRCC). Coordinate requests for frequencies in the 1435-1535 and 2310-2390 MHz bands with the appropriate DoD AFC (see Attachment 4). The AFC coordinates with the AFTRCC.

3.1.2.2. FAA. Coordinate frequency actions for the frequencies and bands listed in Table 3.1 with the appropriate FAA regional frequency management office (FMO):

Table 3.1. Federal Aviation Administration Frequencies and Bands.

190-285 kHz	1030 MHz/1090 MHz
325-415 kHz	1031-1087 MHz
75 MHz	1104-1146 MHz
108-121.975 MHz	1156.5-1213.5 MHz
123.575-128.825 MHz	1215-1400 MHz
132.015-136 MHz	2700-2900 MHz
328.55-335.45 MHz	5000-5250 MHz
977.5-1020.5 MHz	9000-9200 MHz

3.1.2.2.1. The FAA nominates a frequency for ATC (and PRR for radar or radar beacon[RACON]). They coordinate on the service volume, flight level, and desired-to-undesired signal protection (in dBs); and they nominate channels for ILS, VOR, and TACAN.

3.1.2.2.2. An agency coordination serial number is provided by the FAA regional FMO and entered in SFAF Item 504.

3.1.2.2.3. Special coordination procedures for air-to-air TACAN requirements are in paragraph 3.2.7.

3.1.2.2.4. Air Force installations having an ATC support agreement with a FAA facility for local control of civil aircraft will be assigned suitable VHF frequencies for control of these aircraft.

3.1.2.3. DoD AFCs. Each DoD AFC is responsible for frequency coordination within a designated geographical AOR.

3.1.2.3.1. Applicants requesting frequencies for use within a DoD AFC's AOR coordinate specific frequencies, if known, with that DoD AFC in advance (refer to Attachment 4 for exact area information and addresses).

3.1.2.3.2. If the assigned frequency is different from the frequency requested and coordinated, the agency making the assignment must coordinate the new frequency with the appropriate AFC.

3.1.2.4. Terrestrial and Space Systems within Shared Bands. The following information applies to those bands between 1 GHz and 50 GHz equally shared by space and terrestrial services:

3.1.2.4.1. AFFMA determines whether a proposed fixed or mobile station in these bands will be within the normal coordination distance of an Earth station listed in the *NTIA Manual*.

3.1.2.4.2. If the location is within the coordination distance, AFFMA coordinates the request with the agency operating the Earth station.

3.1.2.4.3. Begin coordinating Earth stations during the system review using procedures outlined in paragraphs 8.3.12 and 8.3.13 of the *NTIA Manual*. Indicate on applications for frequency assignments the status of coordination with agencies that have terrestrial operations in the same band and within the coordination area of the Earth stations.

3.1.2.4.4. AFFMA does not take final assignment action until national-level coordination is complete.

3.2. Procedures and Required Information on Specific Frequency Bands and Systems.

3.2.1. Nongovernment Frequency Bands. The military services may use frequencies in certain nongovernment bands between 2-27 MHz and 25-2400 MHz to meet peacetime tactical and training requirements, as well as certain other bands for test range operations.

3.2.1.1. The 2-27 MHz Band. CONUS MAJCOM spectrum managers may assign frequencies listed in Table 2.5 for tactical and training purposes according to the rules in paragraph 2.9.1. AFFMA reserves assignment authority for those frequencies listed in Sectiom 7.15.2(2) of the *NTIA Manual*. Ask for these frequencies through command channels.

3.2.1.2. The 25-2400 MHz Band. CONUS MAJCOM spectrum managers may assign frequencies listed in Table 2.6 for military peacetime tactical and training after coordination with FCC field personnel. Ensure proposed frequencies are compatible with existing nongovernment assignments before coordinating the proposed frequencies with local FCC district engineer in charge (see **Attachment 4** for a list of FCC field offices). Additionally:

3.2.1.2.1. Assignments will not exceed one year. User must recoordinate if continued use is needed.

3.2.1.2.2. MAJCOMs will keep a current list of these assignments and annually furnish a copy to the local FCC district engineer in charge. These frequencies are not entered into the FRRS or GMF.

3.2.1.3. Military Test Ranges. The FCC and the military services have arranged for the military use of nongovernment bands (see Table 2.6) at certain military test ranges (see Attachment 4) except the Atlantic Fleet Weapons Range, Pacific Missile Range, and Kwajalein Missile Range. Air Force organizations that need to use nongovernment frequencies at any of these test ranges coordinate with the appropriate DoD AFC. This procedure does not apply to the development of military systems that may require a new frequency allocation. Obtain frequency support for new system development by separate action according to Chapter 5 and AFI 33-118. Follow these procedures to request frequencies for military test ranges:

3.2.1.3.1. Select frequencies to avoid harmful interference to known nongovernment operations. Where practical, the military station identifies itself using a callsign or periodic interruption according to a prearranged schedule. Keep operations intermittent and adjust them immediately if they interfere with a nongovernment operation.

3.2.1.3.2. The DoD AFC coordinates proposed military operations on nongovernment frequencies with the appropriate FCC district engineer. If the FCC district engineer does not agree with a proposed operation, and circumstances warrant further consideration by higher authority, forward the request through command channels. Include:

3.2.1.3.2.1. Security classification.

3.2.1.3.2.2. Frequency or frequencies proposed for use.

3.2.1.3.2.3. Transmitter location or area of proposed operation.

- If the transmitter is fixed, give the geographical coordinates to the nearest minute and name the nearest community.
- If the transmitter is airborne, describe the general area of operation.

3.2.1.3.2.4. Power (applied to transmission line).

3.2.1.3.2.5. Emission and bandwidth.

3.2.1.3.2.6. Transmitting antenna type, approximate height above ground, gain, and direction of main radiation lobe if a directional antenna is used.

3.2.1.3.2.7. Time of operation (proposed hours or periods of the day), whether the transmissions will be continuous or intermittent (state how intermittent), and if the planned use will occur frequently or only upon specific occasions.

3.2.1.3.2.8. Callsign information, if appropriate. If identification (ID) will occur by periodic interruptions of the transmission, supply the schedule.

3.2.1.3.2.9. Expected length of the operation.

3.2.1.3.2.10. Any additional information to aid in assessing potential interference.

3.2.1.3.3. AFCs will send a list of current frequency assignments in the nongovernment bands to the appropriate FCC district engineer annually.

3.2.1.3.4. Military broadcasting operations. Do not coordinate with regional or local FCC offices, even for information purposes. Ask AFFMA, through command channels, for radio, television, and translator station frequencies using established FCC procedures.

3.2.1.3.5. Other nongovernment band use. In certain cases, military stations may obtain assignments to use frequencies assigned for nongovernment operations. Such cases must meet the following criteria before sending the request through command channels to AFFMA:

3.2.1.3.5.1. The assignment is needed for communication with nongovernment activities that we cannot meet through the use of government frequency bands.

3.2.1.3.5.2. The FCC licensee and the requesting agency have concluded a mutually approved arrangement, and the licensee has provided written authorization for the Air Force unit to operate on the particular frequency.

- Send a copy of this authorization, and a copy of the civilian agency's FCC license, through command channels to AFFMA.

3.2.1.3.5.3. The planned operations will:

- Not bar expansion of the nongovernment services for which the frequencies are assigned.
- Stay within the authorized geographical area of the licensee.
- Stay restricted to the purpose for which the frequency is assigned to the nongovernment stations.
- Operate according to FCC Rules and Regulations.
- Stop if it causes harmful interference to the nongovernment stations.

3.2.2. Space and Balloon Systems. The following special policies apply:

3.2.2.1. On-off capability. Include with each frequency request to radiate electromagnetic energy from spacecraft or balloon systems, either a detailed description of the methods for on-off telecommand capability, or a justified request for an exception.

3.2.2.2. Space-ground link subsystem (SGLS). Eighteen channels in the downlink band (2200-2290 MHz) and 20 channels in the uplink band (1761-1842 MHz) are authorized for field activities at Space Division located at Los Angeles CA; Eastern Space and Missile Center (ESMC); and Western Space and Missile Center (WSMC). Space Division, ESMC, and WSMC spectrum managers manage and issue discrete frequency assignments on a program-by-program basis.

3.2.3. Ionospheric Chirpsounders. Before sending frequency requests for chirpsounders and similar devices, the applicant must:

3.2.3.1. Ensure no existing authorized sounder can meet the requirement.

3.2.3.2. Operate secondary to authorized radio services.

3.2.3.3. Avoid transmitting in the bands listed in Table 3.2 for chirpsounders capable of frequency suppression.

Table 3.2. Excluded Chirpsounder Bands.

2.495-2.505 MHz	19.990-20.010 MHz
4.995-5.005 MHz	21.850-21.870 MHz
9.995-10.005 MHz	24.990-25.010 MHz
13.360-13.410 MHz	25.550-25.670 MHz
14.990-15.010 MHz	38.000-38.250 MHz

3.2.3.4. Sweep or step transmissions through the operating range of equipment at a rate or time interval that will avoid causing harmful interference.

3.2.3.5. Immediately cease transmissions that cause harmful interference to authorized radio services when told.

3.2.3.6. Design transmitters to eliminate emissions on any frequency where harmful interference is caused to authorized frequency users.

3.2.3.7. Include in requests, in addition to the minimum information required in the SFAF, the following in Item 502:

- Channeling plans.
- Pulses per channel.
- Sweep rates.
- Sweep intervals.
- Pulse width (duration).
- PRR.
- Antenna type.
- Antenna orientation.
- The statement, “No existing authorized ionospheric sounder system is capable of meeting this requirement.”

3.2.4. Chirpcomm. Chirpcomm is a low-power, highly reliable message transmission capability used in conjunction with chirpsounders. The system sends nonsecure narrative messages up to 38 characters, with a two-character transmit station identifier. This subsystem supplements and sustains existing HF communications circuits by enhancing the chirpsounder capability. However, EMC differs significantly from the chirpsounder-only mode. You must consider potential interference to other HF circuits and meet the following conditions:

3.2.4.1. United States military chirpcomm systems are authorized only for critical or contingency requirements when standard methods of communication are not feasible.

3.2.4.2. Obtain specific frequency assignments for the chirpcomm mode in addition to those for the chirpsounder.

3.2.4.3. Send chirpcomm system frequency proposals in SFAF. Include a brief statement concerning the chirpcomm operation in Item 502. Also include the emission designator (600H00F1B) in SFAF Item 114 as follows:

3.2.4.3.1. For a new chirpsounder and chirpcomm assignment, enter the chirpcomm emission designator, along with the normal chirpsounder emission designator (2H50NON), as a multiple SFAF Item 114.

3.2.4.3.2. When you need to modify an existing chirpsounder assignment, include the chirpcomm system and add the chirpcomm emission designator.

3.2.4.4. AFFMA coordinates chirpcomm systems within the US&P with the NTIA.

3.2.5. Tactical Frequency Management System (TFMS). The TFMS continually measures HF propagation conditions and monitors spectrum usage. It measures and observes propagation conditions by using the chirpsounder. An Air Force unit may use the information received through the TFMS to assist in managing its frequency assets. Send frequency proposals to use the TFMS and its chirpsounder in SFAF through command channels. To obtain additional spectrum support based on TFMS information:

3.2.5.1. Use assigned frequencies first.

3.2.5.2. Use unoccupied frequencies only when assigned frequencies cannot support communication needs and then only from fixed service bands.

3.2.5.3. Use unoccupied frequencies on a NIBfor paths less than 250 miles, and for no longer than one hour.

3.2.5.4. Use only assigned frequencies for paths greater than 250 miles.

3.2.6. Use of the 30-75 MHz Band on Army Installations. The Army assigns almost every usable frequency in the 30-75 MHz band to the post commander for use by tenant units. Air Force units needing frequencies in this band on an Army installation for less than one year apply via message or letter to the Director of Information Management (ATTN: Frequency Manager) for the Army Installation, with information copies to the appropriate DoD or Army AFC and parent MAJCOM. Include in the application:

3.2.6.1. A narrative description of the requirement with the proposed use of the frequencies.

3.2.6.2. A list of operating parameters including the number of frequencies required, emission and power characteristics, nomenclature of equipment, type and gain of antennas, and required dates.

3.2.6.3. A statement of the unit's capability to periodically change operating frequencies.

3.2.7. Air-to-Air TACAN Channels. The following applies to Air Force units that need to use TACAN channels for air-to-air operations:

3.2.7.1. IRAC makes assignments to operate on TACAN channels after FAA coordination and approval.

3.2.7.2. TACAN frequency assignments are normally for a five-year period, with renewal, after coordination with FAA.

3.2.7.3. Air-to-air DME operations are authorized on an area-wide basis (for example, state or states, US, or US&P). Send frequency proposals for DME operations in SFAF through command channels to AFFMA. Give the number of channels needed, the maximum number of aircraft involved in the operation, and justification for use of the civil channels. Apply for "Y" channels if technically possible. Include in the proposals the statement, "Required for DME operations only; will not use the azimuth mode."

3.2.7.4. TACAN operations using the azimuth mode are authorized only within areas bounded by specific geographical coordinates. Send frequency proposals in SFAF to AFFMA through the appropriate MAJCOM. Include in SFAF Item 530 the geographical coordinates that enclose the desired area of operation. If more than seven states are involved, insert "USA" in items 301 and 401, and list all states in Item 530. Send individual proposals for each state when less than seven are involved. Coordinate with all FAA regional offices involved. Ask for "Y" channels if technically possible. State the number of channels needed and justify their use.

3.2.8. Antenna Testing Frequencies Above 30 MHz. Include the following information in SFAF Item 502:

3.2.8.1. Effective radiated power (ERP). If unknown, give a reasonable estimate.

3.2.8.2. Profile of the surrounding terrain by description, maps, or other means. If you are testing within shielded enclosures, so state, and give the attenuation (in dBs) provided by the enclosure.

3.2.8.3. Antenna configuration, to include:

3.2.8.3.1. Type.

3.2.8.3.2. Whether full scale or less than full scale.

3.2.8.3.3. Beamwidth in azimuth and elevation.

3.2.8.3.4. The estimated hours of use in local time (for example, 0800 to 1700 daily, Monday through Friday; daytime only, Monday through Friday).

3.2.8.4. Requests for restricted frequencies. Except in unusual circumstances, do not ask for bands where regulations prohibit assignments (for example, radio astronomy bands, standard frequency bands, some space bands, etc.). If a frequency is needed in a prohibited band, explain in SFAF Item 502 why operation is necessary in the prohibited band. Include type of service for which the antenna test is intended, (for example, radio location, radionavigation, fixed, space).

Give the government agency and contract number if testing supports a government contract. Explain the mission impact if you are not provided an assignment.

3.2.9. NAVAIDs.

3.2.9.1. ATCRBS, IFF, and SIF. Assignments are needed only on 1030 MHz for ground stations. Include in SFAF Item 503 the FAA-coordinated PRR with the nomenclature and PRR of the associated primary radar. Coordinate with FAA and obtain IRAC assignments for 1090 MHz for uses other than ATCRBS, IFF, or SIF.

3.2.9.2. Aeronautical radio navigation (1240-1300 MHz, 1350-1370 MHz, 2700-2900 MHz, 9000-9200 MHz). Only ground-based radars performing an ATC function may use these frequency bands. Use includes associated airborne transponders activated by radars operating in the same band. Coordinate with the FAA regional office before sending frequency proposals. Radar equipment performing a function other than listed below will not normally have frequency assignments in these bands.

3.2.9.2.1. LRRs use the 1240-1370 MHz band.

3.2.9.2.2. ASRs use the 2700-2900 MHz band. (Exception: Next generation radar [NEXRAD] weather radar uses the 2700-3000 MHz band.)

3.2.9.2.3. PARs use the 9000-9200 MHz band.

3.2.9.3. VOR, ILS, and TACAN. Coordinate with the FAA regional office before sending frequency proposals.

3.2.9.4. MLS. The FAA engineers frequency support for the MLS (5000-5200 MHz) and associated precision DME-P (960-1215 MHz). The IRAC or FP makes the frequency assignments as appropriate.

3.2.10. LMR Systems. Because of extreme congestion in the 148-150.8 and 162-174 MHz bands, new LMR frequency assignments are usually made in the 138-144 or 406-420 MHz bands unless use of another band is needed for operational reasons. Ensure LMR frequency assignments are available before deploying equipment overseas by sending requirements through appropriate MAJCOM channels before deployment.

3.2.11. LMR Trunked Systems. SPS review is required for all new LMR trunked system installations. Send the data required by paragraph 10.8 of the *NTIA Manual* at least 60 days before sending the frequency proposal for such systems. Submit frequency proposals after SPS has approved the trunking request.

3.2.12. Pagers. Study shared use of existing paging systems in the area before asking for a frequency assignment and obligating funds for equipment. Ensure a pager frequency authorization is available before deploying equipment overseas.

3.2.13. Special Considerations for the CONUS HF. HF is the most critical portion of the RF spectrum. Satisfy new requirements by using time and geographical sharing with existing assignments. The use of HF for domestic, point-to-point service within the CONUS is limited to the following:

3.2.13.1. For instantaneous transmission of emergency, command and control, and alerting traffic of such importance as to affect the immediate defense and survival of the nation. In such cases, the following apply:

3.2.13.1.1. Keep circuits in an operational status at all times and conduct on-the-air tests to ensure readiness.

3.2.13.1.2. Protect frequency assignments for such circuits according to the importance of the communications requirement.

3.2.13.2. When required for emergencies where life, public safety, or important property is jeopardized and other communications means are nonexistent, temporarily disrupted, or inadequate. Use a nonradiating (dummy) load as much as possible to test frequencies in this category. Keep tests using a radiating antenna to a minimum. Do not conduct operator training on these frequencies.

3.2.13.3. When there is a need for a communications system staffed by fully qualified operators who are military reservists, MARS affiliates, or personnel in tactical or training systems. Do not use these frequencies for traffic routinely handled by other means.

3.2.13.4. When other telecommunications facilities, such as the DCS and MARS, do not exist or are not practical for the installation, and the use of frequencies above 30 MHz is not practical.

3.2.14. Frequency Diversity. Justify the use of frequency diversity for new LOS transmission systems in the bands 1710-1850, 2200-2290, 4400-4490, 7125-7250, and 8025-8400 MHz. Explain the need for such a high degree of systems reliability and cite the engineering study showing that frequency diversity is needed to get the required reliability. Existing systems using frequency diversity may continue until frequency congestion requires reevaluation.

3.2.15. Frequency Band Assignments. Frequency band assignments are normally made for the following types of systems according to NTIA guidelines:

3.2.15.1. Transmitters that automatically sweep through all frequencies in a band.

3.2.15.2. Radiosonde transmitters that operate in the 400.15-406.0 or 1670.0-1700.0 MHz bands.

3.2.15.3. Frequency agile RACONs that operate in the 2900-3100 or 9300-9500 MHz bands.

3.2.15.4. Transmitters that automatically change frequency based on propagation conditions along the transmission path.

3.2.15.5. Transmitters that automatically pause at 15 or more specific frequencies within a band.

3.2.15.6. Research, development, test, and evaluation (RDT&E) operations that need use of 15 or more specific operating frequencies within a band.

3.2.16. Frequency Requests for Canada and Canadian Border Areas. The United States and Canada have made arrangements to coordinate frequency requests for radio transmitters operating close to both countries.

3.2.16.1. Frequency assignments in United States-Canadian border areas. Use of certain frequencies above 30 MHz in areas near the border are coordinated with Canada. The actual distance from the border depends on the frequency, transmitter power, and antenna height. AFFMA coordinates with Canada when frequency actions meet these conditions.

3.2.16.2. Assignments for Air Force radio stations in Canadian Territory. The Canadian Government (in agreement with the United States Government) licenses United States military radio stations in Canada under the following:

3.2.16.2.1. Activities under Canadian military control. Activities include the distant early warning line and the Goose Bay-Melville-Northwest River Complex. The Canadian-United States defense agreement must authorize each radio station; however, these radio stations do not need individual licenses.

3.2.16.2.2. Other United States military bases and activities:

3.2.16.2.2.1. A Canadian-United States defense agreement must authorize each installation or activity.

3.2.16.2.2.2. United States military radio stations that support a United States activity need a Canadian license.

3.2.16.2.2.3. Multiple equipment installations, such as USAF communications complex transmitter sites, are licensed as individual stations.

3.2.16.2.2.4. Airborne radio stations do not need a Canadian license for communications with a licensed ground station, but do require frequency coordination and approval from the Canadian Frequency Allocation Coordinating Subcommittee and the Joint Telecommunications Committee for airborne radio operations. AFFMA processes the coordination and clearance through the USMCEB FP for USAF airborne radio stations operating in Canada.

3.2.16.2.2.5. Licenses issued to parent fixed stations include associated vehicular radio stations.

3.2.16.2.2.6. Paint and light antenna towers and structures according to Canadian aviation specifications.

3.2.16.2.3. Station licenses. AFFMA obtains licenses using the data from frequency actions sent by the MAJCOMs. Include in SFAF Item 502 the approximate number of civilian and military personnel, assigned to the radio station on a yearly basis, who directly operate and maintain transmitter and receiver stations.

3.2.16.2.4. Amendments to licenses. Review frequency assignments before 1 December of each year to determine if any changes are needed. If so, send a frequency modification through command channels to reach AFFMA before 1 January of each year. Include in SFAF Item 502 the reason for the change. AFFMA coordinates the changes with the Canadian Department of Communications. MAJCOMs must validate any changes to the technical operation of an installation.

3.2.16.2.5. Renewal of licenses. The Canadian Department of Communications automatically renews radio licenses not requiring amendments on 1 April of each year, without any action by the applicant.

3.2.17. Operating and Registering FCC-Licensed Stations on Air Force Installations.

3.2.17.1. CBs, amateurs, taxi companies, and other FCC-licensed radio stations may transmit on Air Force installations but are subject to any limitations imposed by the installation commander. Do not impose limitations that unnecessarily infringe on the rights of the individual to operate a radio according to FCC *Rules and Regulations*.

3.2.17.2. Register FCC-licensed stations operating on an Air Force installation only if the installation commander believes there is a need for registration. Include registration instructions in an installation instruction or manual.

3.2.17.3. If FCC-licensed stations are involved in interference:

3.2.17.3.1. Report interference from an FCC-licensed station to Air Force operations according to AFI 10-707, *Spectrum Interference Resolution Program*. The installation commander may direct an on-installation offending station to cease operations and will notify AFFMA, through host MAJCOM, of details of the action within three duty days. AFFMA will give this information, including action taken, to the FCC, Washington DC, if appropriate, and the concerned FCC field office (see Attachment 4, paragraph A4.4).

3.2.17.3.2. Licensees report interference between two FCC-licensed stations to the appropriate FCC field office.

3.2.17.3.3. Report Air Force operations interference to FCC-licensed stations according to AFI 10-707.

3.2.17.3.4. The FCC resolves interference by an FCC-licensed station to the reception of commercial broadcast stations or the use of home entertainment units. Victims of such interference report the problem to the appropriate FCC field office.

3.2.18. CB Radio Service. Frequency proposals for CB frequency assignments are considered on a case-by-case basis based on justification and operational concept. Assignments will include record note S348 and results of national-level coordination with the FCC.

3.2.19. Intercommand Transfer of an Installation.

3.2.19.1. The losing MAJCOM:

3.2.19.1.1. Sends a list of assigned frequencies no longer needed to the gaining MAJCOM.

3.2.19.1.2. Sends the gaining MAJCOM the records for assigned frequencies that the losing MAJCOM still needs.

3.2.19.1.3. The gaining MAJCOM:

3.2.19.1.3.1. Reviews the installation radio frequency authorization (RFA) to determine the actions for assigned frequencies.

3.2.19.1.3.2. Sends frequency actions to update the operating MAJCOM and other data for frequencies still required after the transfer.

3.2.19.1.3.3. Sends frequency deletions for frequencies no longer needed.

3.2.19.1.3.4. Ensures host-tenant and interservice support agreements address frequency support for tenant units.

3.2.19.1.3.5. Requests AFFMA make arrangements for large-scale transfers of frequencies, such as those cause by a MAJCOM deactivation.

3.2.20. Emergency Frequency-Sharing Notification. Under emergency conditions, several government agencies may operate on, or near, frequencies assigned to Air Force organizations. When an agency declares an emergency, one of its field units will coordinate with the Air Force organization involved to arrange frequency sharing during the emergency. Air Force units will cooperate fully dur-

ing emergencies unless frequency sharing would jeopardize mission-essential operations. To properly coordinate at the national level, units must notify AFFMA when emergency situations exist. When emergency frequency sharing is necessary, the affected Air Force unit will immediately notify AFFMA, through command channels, by:

3.2.20.1. Telephone, during normal duty hours.

3.2.20.2. PRIORITY message, during non-duty hours, to the parent MAJCOM, with an information copy to AFFMA.

3.2.21. International Maritime Satellite (INMARSAT) Operations. The Communications Satellite (COMSAT) Corporation is the sole agent for commissioning and use of the INMARSAT system in the CONUS. Obtain commissioning applications from the COMSAT Corporation, following the procedures in Annex E of the *NTIA Manual,* or various vendors of INMARSAT compatible terminal equipment.

3.2.21.1. Send completed INMARSAT applications to the HQ AFCA/SYXR, Scott AFB IL for coordination and processing with the COMSAT Corporation. Do not submit applications directly to AFFMA, COMSAT Corporation, NTIA, or the DoC.

3.2.21.2. CONUS use of INMARSAT is limited to Standard "A" terminal equipment. CONUS use of other than Standard "A" terminals is controlled by the FCC approved satellite carrier.

3.2.21.3. All other INMARSAT equipment is restricted to outside the continental United States (OCONUS) use and is subject to restrictions set forth by host nation governments. Coordinate equipment use through the appropriate spectrum management channels.

3.2.22. Joint Tactical Information Distribution System (JTIDS) Frequency Applications. The USMCEB requires the Air Force to process all JTIDS frequency clearances through the AFFMA JTIDS action officer (T14). All JTIDS frequency actions are coordinated at the national level with the FAA, military services, and affected military operating area spectrum managers. Frequency requests follow the normal FAS/IRAC process and require a minimum of 60-90 days to complete.

Chapter 4

STANDARD FREQUENCY ACTION FORMAT

4.1. General.

4.1.1. The SFAF is the DoD standard which you must use for all DoD frequency actions and records. Enter the required data items in sequential order in a vertical format. Do not exceed the allowed number of characters in a item. Attachment 3 is a guide to the SFAF.

4.1.2. These instructions apply to both automatic digital network (AUTODIN) message and automated processing format (APF). Differences are listed where necessary. If desired, prepare new assignment proposals using the item structure rules for modifications when using APF instead of AUTODIN.

4.1.3. A SFAF message may contain more than one frequency action.

4.1.4. Whenever possible, send frequency actions by electronic transmission Defense Data Network (DDN), Defense Information System Network (DISN), personal computer-to-personal computer (PC-to-PC), by Secure Telephone Unit-III (STU-III), or disk, instead of AUTODIN message.

4.1.5. Use American Standard Code for Information Interchange (ASCII) format for APF files.

4.1.6. Standard entries for certain SFAF items are contained in Attachment 2.

4.2. Standard Frequency Action Format **Structure**.

4.2.1. Classification.

4.2.1.1. Base the overall classification of the frequency action on the highest classified data element, or combination of data elements, within the action.

4.2.1.2. Identify classified data according to AFI 31-401, *Managing the Information Security Program*, by inserting a security classificaiton code in parenthesis immediately following the SFAF item number.

4.2.1.3. The use of (U) for unclassified items within a classified action is not required if the following is inserted between the classification and subject lines: "ITEMS NOT IDENTIFIED AS CLASSIFIED ARE UNCLASSIFIED."

4.2.1.4. If the action is for an overseas requirement, ensure host nation releasability instructions are included as part of the message classification.

4.2.2. Subject.

4.2.2.1. Begin the subject of AUTODIN messages with "FREQUENCY PROPOSAL, USAF" or "FREQUENCY ASSIGNMENT, USAF," suffixed as required. For crisis or contingency requirements needing immediate action, include "FOR CONTINGENCY COMMUNICATIONS" and the unclassified plan name or number.

4.2.2.2. Name APF files as follows: AFCCCCDD.MMM, where "AF" stands for Air Force, "CCCC" is the standard MAJCOM abbreviation, "DD" is the day of the month, and "MMM" is the month. MAJCOM abbreviation codes are shown in Attachment 2. For command codes less than four letters, fill in trailing blanks with zeros. Do not use a subject within the APF.

4.2.3. SFAF Items.

4.2.3.1. Always list Item 005 as the first item within a frequency action. Other items follow in numerical order.

4.2.3.2. Use slant bars to:

4.2.3.2.1. Separate multiple occurrences of data within an item when allowed (for example, 500. S049/C075).

4.2.3.2.2. Identify the order of occurrence of multiple occurrences of data within an item when modifying an existing record (for example, 500/2. S165).

4.2.3.3. Use commas to separate individual data elements within an item (for example, 147. N,AF). You may use a combination of slant bars and commas in the same item (for example, 440. C,RCACR104/G,AN/ARC164); however, do not use commas and slant bars interchangeably.

4.2.3.4. Use a dollar sign after an item (for example, 402. $) to delete that item from the existing record. If there are multiple occurrences of data, include the order of occurrence of the data deleted (for example, 113/2. $). In this example, the identifier "2" indicates that you only want to delete the second data entry in Item 113 entry. All remaining data entries are automatically renumbered during deletion. **NOTE:** If no occurrence identifier is specified, number "1" is assumed (for example, 113. $).

4.2.3.5. A special "mass-purge" feature is available to simplify the process of deleting large quantities of related data. This feature, however, is only used with certain "key" data items identified below. Use the dollar sign with a key identifier to delete that particular item and all related items. Examples of how the mass-purge feature is used follows:

4.2.3.5.1. The entry "340. $" deletes associated transmitter equipment items (340, 343 through 348). If multiple equipment items are in the record, use 340. $, 340/2. $, 340/3. $, etc., to delete the additional equipment data (these also delete the respective portions of items 343 through 348).

4.2.3.5.2. The entry "354. $" deletes associated transmitter antenna items (354 through 357). The entry "358. $" deletes associated transmitter antenna items 359 through 363. If multiple antennas are used, use occurrence identifiers (for example, 354/2. $, 354/3. $).

4.2.3.5.3. The entry "400. $,R03" deletes all items associated with the third receiver location (R03) from items 400 through 472.

4.2.3.5.4. The entry "400. $,R03-R05" deletes all items associated with the third, fourth, and fifth receiver locations from items 400 through 472.

4.2.3.5.5. The entry "440/3. $,R02" deletes all items associated with the third receiver equipment at the second receiver location. (This automatically deletes corresponding portions of items 440 through 443.)

4.2.3.5.6. The entry "454. $" deletes associated receiver antenna items (454 through 457). The entry "458. $" deletes associated receiver antenna items 459 through 463. If multiple antennas are used, use occurrence identifiers (for example, "454/2. $", "454/3. $").

4.2.3.6. Do not use the following symbols in any item:

: - Colon**#** - Number or pound

;- Semicolon**?** - Question mark

]- Right square bracket\ - Reversed virgule

[- Left square bracket**“** - Quotation mark

@ - At sign**&** - Ampersand

% - Percent sign**!** - Exclamation mark

< - Less than sign> - Greater than sign

- Number sign**+** - Plus sign

= - Equal sign**_** - Underscore sign

‘ - Apostrophe^ - Insert sign

4.3. Types of Actions (SFAF Item 010) . Use one of these seven frequency action types in SFAF Item 010:

4.3.1. NEW (N). Creates a new record. Enter only one frequency per record when using the APF for new permanent frequency actions.

4.3.2. MODIFICATION (M). Use this to modify or make five-year reviews of existing frequency assignments. This format is not used to modify FRRS ID, agency serial number, frequency, or transmitter state or country. Include items 005, 010, 102, 110, 144, 300, 301, 701, 702, 803, and any items added, changed, or deleted. When changing an item, include the item number and the new data. (The computer automatically deletes the old data except for items 502, 520, and 531 in which it adds the new data to the existing data unless the existing items are first deleted by listing the item number and a dollar sign). List all items used in the same sequence as they appear in the SFAF. Use multiple record identifiers as appropriate.

4.3.3. DELETION (D). Use items 005, 010, 102, 110, 144, 300, 301, (400/401 in the case of downlink receivers), to delete an existing frequency assignment. If appropriate, include applicable items in the 700 series.

4.3.4. RENEWAL (R). Use items 005, 010, 102, 110, 141, 144, 300, 301, and applicable 700 series items to renew a frequency assignment with an expiration date (item 141). Use the MODIFICATION type of action if any other items have changed.

4.3.5. NOTIFICATION (F). The NOTIFICATION type of action notifies IRAC that a frequency authorized under a group assignment is being brought into use. This action is based on the authority granted previously by IRAC. Use the NEW action format with the agency serial number of the group assignment in item 105.

4.3.6. ADMINISTRATIVE MODIFICATION (A). Use the ADMINISTRATIVE MODIFICATION type of action to make changes in the three general categories outlined below:

4.3.6.1. Typographical corrections. This corrects data in an existing frequency assignment record that is different from the authorizing document, (i.e., the GMF record for US&P assignments or AFFMA, CINC, or FP assignment messages for US&P assignments).

4.3.6.2. Changes in administrative data items (for example, 200 series and/or other non-IRAC data items). These items are changed for standardization, reorganization, etc.

4.3.6.3. Required "mass" changes. These are administrative modifications required to comply with international, national, or DoD rules and regulations. In all cases, notify the assignment authority of administrative modifications initiated by the appropriate FMO. Computer editing will only affect the items you change. It will not change the 5-year review unless you specifically include it in the administrative modification action. The format is normally the same as that for MODIFICATION type actions, but you may make mass changes by narrative message or letter request.

4.3.7. TEMPORARY (T) (Air Force use only).

4.3.7.1. Use the TEMPORARY type action when both of the following conditions are met:

4.3.7.1.1. Period of use will not exceed 90 days.

4.3.7.1.2. You have coordinated any radar operation on 1030 MHz and in the 1215-1400, 2700-2900, and 9000-9200 MHz bands with the appropriate FAA region.

4.3.7.2. Use the following SFAF items as a minimum: 005, 010, 110, 113, 114, 115, 200, 207, 300, 301, 303 (to nearest minute), 340, 400, 401, 403 (to nearest minute), 440, 502, 702, 803, and other applicable 500 series items. For DCS HF-entry exercises, include items 354 and 454. For pulsed emitters, include items 346 and 347. For aeronautical NAVAIDs include item 711 and 801. The assignment authority may require additional items depending on the type of assignment.

4.3.7.3. For temporary frequency actions going to Canada, include the following items as a minimum: 005, 110, 113, 114, 115, 140, 141, 200, 300, 301, 303, 306, 340, 400, 401, 403, 502, 702, and 711.

4.3.7.4. For temporary frequency actions for other locations outside the US&P refer to theater policy for any additional required items.

4.4. System Identifier (SFAF Item 705) . Use the system identifier to show the primary function or purpose of the frequency assignment. This entry does not restrict the user from using the frequency for other purposes (within the assignment parameters) as circumstances warrant, nor is the user required to obtain approval before changing the functional use of the assignment. However, the user should correct this item when the assignment is modified or updated.

4.4.1. This item is mandatory for all Air Force records. Enter a function name from the list in **Attachment 2**, paragraph A2.6.3.

4.4.2. If the frequency is used for more than one purpose, enter the function which is most important to the user's mission. If two or more functions are equally important, enter the one which will make most use of the assigned frequency. You may enter amplifying information to more precisely identify the purpose of the assignment (for example, "MAINTENANCE, CONTROL" or "TRANSPORTATION, TAXI"), but limit the line length to 35 characters. If function code MISC is used, you must include amplifying information (for example, "MISC, FLIGHT SUPPORT").

Chapter 5

SPECTRUM CERTIFICATION PROCESS

5.1. General. The DoD is the largest user of RF spectrum resources among Federal Government Agencies. DoD assigned the responsibility for military frequency engineering and management to the United States Military Communications-Electronics Board (USMCEB).

5.1.1. The USMCEB established a FP consisting of representatives from each service to address spectrum management issues.

5.1.2. The USMCEB, through the FP's J-12 working group, reviews the characteristics of C-E equipment purchased or developed by the DoD. This is known as the Joint Frequency Allocation for Equipment Process (J/F-12 Process).

5.1.3. DoDD 4650.1 requires the Air Force to obtain frequency guidance prior to contractual obligation with respect to either the development or procurement of telecommunications equipment designed purposely to radiate or receive electromagnetic energy.

5.1.4. C-E systems or equipment used overseas must meet applicable host nation EMC standards and frequency criteria according to CINC policies and agreements with host nations.

5.1.5. AFI 33-118, Section C, provides additional guidance on obtaining RF spectrum support for equipment.

5.2. Department of Defense Form 1494, **Application for Equipment Frequency Allocation**, is used to get spectrum support guidance from the USMCEB. This guidance outlines the general considerations, provisions, and restrictions that apply to a particular system concerning the use of the electromagnetic spectrum, and is directive upon the submitting MAJCOM.

5.2.1. You must submit DD Form 1494 to request spectrum certification on electromagnetic radiating equipment that will use the RF spectrum. The application is typically submitted by a MAJCOM to AFFMA for processing according to AFI 33-118.

5.2.2. Non-Licensed Devices. Submit DD Form 1494 before procuring FCC Part 15 non-licensed devices and for devices complying with the technical standards for federal non-licensed devices in Annex K of the *NTIA Manual*.

5.2.2.1. You must provide the following minimum technical information for these devices:

5.2.2.1.1. Operating frequency.

5.2.2.1.2. Emission bandwidth.

5.2.2.1.3. Transmitter power.

5.2.2.1.4. Antenna gain.

5.2.2.2. Provide all other readily obtainable information for these devices on the DD Form 1494.

5.2.2.3. When you cannot obtain data, enter "NAvail" into the appropriate block of the DD Form 1494.

5.2.3. Foreign Disclosure. The release of technical information to foreign governments is necessary to coordinate RF spectrum support for Air Force systems designed or planned to operate outside the US&P (see AFI 33-118, Section C).

5.3. Guide to Accomplishing Department of Defense Form 1494. The DD Form 1494 is composed of six pages of information. Instructions for each page are as follows:

5.3.1. DoD General Information Page. Following the instructions, enter the appropriate information for each item:

5.3.1.1. Item 1, Application Title. Enter the government nomenclature or the manufacture's name and model number. Use the Joint Electronics Type Designation System (JETDS) when available (Examples: AN/TRC-170, AN/GRC-27). Include official nicknames. You must use an unclassified title.

5.3.1.2. Item 2, System Nomenclature. Enter the nomenclature of the system for which the specified system in block 1 is a subsystem; if system is not a subsystem, enter application title. Use the JETDS nomenclature when available.

5.3.1.3. Item 3, Stage of Allocation. Mark the appropriate block using the following NTIA definitions:

5.3.1.3.1. STAGE 1 - Conceptual. The initial planning effort is completed, including proposed frequency bands and other available characteristics.

5.3.1.3.2. STAGE 2 - Experimental. The preliminary design is completed and radiation using test equipment or preliminary models is required.

5.3.1.3.3. STAGE 3 - Developmental. The major design is completed and radiation is required during testing.

5.3.1.3.4. STAGE 4 - Operational. Development is essentially completed and final operating constraints or restrictions required to assure compatibility need to be identified.

5.3.1.4. Item 4, Frequency Requirements. Enter the required operational frequency ranges. For equipment designed to operate only at a single frequency, enter the frequency of operation. Enter the emission designator in the block and ensure it conforms to the format set forth in Chapter 9 of the *NTIA Manual* (see Attachment 2, paragraph A2.5.2.2.3).

5.3.1.5. Item 5, Target Starting Date for Subsequent Stages. Enter the proposed date of application submission for each subsequent stage. You must list the target starting date for the stage of submission and previous stages as NA. The target starting date for stages subsequent to the stage of submission must allow time for processing prior to anticipated contract award dates.

5.3.1.6. Item 6, Extent of Use. Enter the extent of use that will apply to Stage 4, for example, continuous or intermittent. If intermittent, provide information including the expected number of hours of operation per day or other appropriate time period; scheduling capability; and any conditions governing the times of intermittent use.

5.3.1.7. Item 7, Geographical Area. Enter the geographical location(s) or area(s) of use for this and subsequent stage(s). Provide geographical coordinates (degrees, minutes, seconds) if available. Enter the geographical location in which the system operated during the stages preceding the

stage for which the application is submitted as NA. List the geographical location in which the system will operate during the stage for which the application is submitted and subsequent stages.

5.3.1.8. Item 8, Number of Units. Enter the number of units planned for the stage of review requested and later stages. The number of units operated during stages preceding the stage for which the application is being submitted must be entered as "NA".

5.3.1.8.1. The number of units planned for operation during the stage for which the application is being submitted and subsequent stages must be listed.

5.3.1.9. Item 9, Number of Units Operating Simultaneously in the Same Environment. Enter the maximum number of these units planned for operating simultaneously in the same environment during Stage 4 use.

5.3.1.10. Item 10, Other J/F 12 Application Number(s). Enter the superseded and related spectrum certification application(s).

5.3.1.11. Item 11, Operational Requirement. Indicate whether the equipment will operate with the same or similar equipment used by other United States military services, DoD components, United States Government agencies, or allied nations. If yes, specify in Item 13 the services, agencies, or countries (to include the country's services).

5.3.1.12. Item 12, Names and Telephone Number(s). Enter the name, office symbol, and telephone number of the program manager and a project engineer. The project engineer should be someone familiar with the RF parameters on the submitted DD Form 1494.

5.3.1.13. Item 13, Remarks. Enter information that continues and expounds upon entries made in preceding blocks.

5.3.1.14. General. Enter the highest level of security classification for the entire document in the classification block. Ensure the classification marking is in bold letters which are larger than the largest typed letters on the form. If the DD Form 1494 is classified, mark each block on the form with the appropriate classification.

5.3.1.14.1. Provide downgrading instructions if application is classified.

5.3.1.14.2. "NA" is entered for Non-Applicable items.

5.3.1.14.3. "NAvail" must be entered for items when appropriate data is not available. However, make every effort to enter required items to the greatest degree possible.

5.3.2. Transmitter Equipment Characteristics Page. Following the instructions, enter the appropriate information for each item.

5.3.2.1. Item 1, Nomenclature, Manufacturer's Model No. Enter the government nomenclature or the manufacturer's name and model number. Use the JETDS when available.

5.3.2.2. Item 2, Manufacturer's Name. Enter the manufacturer's name if available. If a manufacturer's model number is listed in Item 1, this block must be completed.

5.3.2.3. Item 3, Transmitter Installation. Enter the specific type(s) of vehicle(s), ship(s), plane(s) or building(s), etc., where you will install the transmitter(s).

5.3.2.4. Item 4, Transmitter Type. Enter the generic class of the transmitter by indicating modulation type and purpose (for example, AM communications, Doppler pulse radar, spread-spectrum, etc.).

5.3.2.5. Item 5, Tuning Range. Enter the frequency range (lowest center frequency - highest center frequency) through which the transmitter is tuned. For fixed frequency systems list the range of tunable frequencies obtainable by crystal substitution or cavity adjustment.

5.3.2.6. Item 6, Method of Tuning. Enter the method of tuning by indicating method of effecting change and device insuring frequency stability (for example, manually adjusted klystron cavity, fixed crystal, crystal synthesizer, etc.). For equipment not tunable in the field, indicate means by which tuning is accomplished.

5.3.2.7. Item 7, RF Channeling Capability. Describe the RF channeling capability. For uniformly spaced channels, enter the center frequency of the first channel and channel spacing (for example, 406 MHz, 100 kHz increments); for continuous tuning, enter the lowest frequency and the word "continuous"; for other cases enter a detailed description. If the transmitter is not readily tunable in the field, describe tuning method.

5.3.2.8. Item 8, Emission Designator(s). Enter the emission designator(s) which describe the type emission(s) radiated from the transmitter. The emission designator must conform to the format in Chapter 9 of the *NTIA Manual*. (See Attachment 2, paragraph A2.5.)

5.3.2.9. Item 9, Frequency Tolerance. Enter the maximum drift from a transmitter's center frequency after completion of normal warm-up time. Enter the frequency tolerance in parts per million (ppm) for all emission types except single sideband which is indicated in hertz (Hz). Use the following equation to convert frequency drift in Hz to frequency tolerance in ppm. Specify the center frequency in the same units as the frequency drift.

$$\text{ppm} = \frac{\text{Frequency Drift}}{\text{Transmitter Center Frequency}} \times 1{,}000{,}000$$

5.3.2.10. Item 10, Filter Employed. Have you installed a filter between the final RF stage and the antenna? If so, provide the filter type, insertion loss, and attenuation characteristics.

5.3.2.11. Item 11, Spread Spectrum. Indicate whether the transmitter can operate in a spread-spectrum mode. If so, provide an explanation of the signal characteristics in Item 14.

5.3.2.12. Item 12, Emission Bandwidth. Enter a characterization of the transmitter's transmitted spectral power envelope for each emission designator listed in Item 8. The -3, -20, -40, and -60 dB values refer to the RF bandwidth containing all spectral components within 3, 20, 40, and 60 dBs of the peak envelope power (PEP) of the transmitted signal. When using calculations to determine the necessary bandwidth, use the formulas in Annex J of the *NTIA Manual*, otherwise, provide the method of calculation. If the emission bandwidth is measured, explain the measurement technique used. The necessary bandwidth for radars is defined as the -20 dB emission bandwidth value stated in Item 8. The -40 dB emission bandwidth is only required for pulsed radar systems. The occupied bandwidth is that band in which 99% of the integrated power spectral density is contained. If the transmitter can operate in the frequency hop mode, provide the instantaneous and hopped bandwidth.

5.3.2.13. Item 13, Maximum Bit Rate. Enter the maximum information bit rate for digital equipment, in bits per second. For spread-spectrum transmissions enter the bit rate after error-correction coding, not the spectrum spreading chip rate.

5.3.2.14. Item 14, Modulation Techniques and Coding. Provide the details on the type modulation and coding techniques employed.

5.3.2.15. Item 15, Maximum Modulation Frequency. Enter the maximum modulation frequency for an angle modulated transmitter.

5.3.2.16. Item 16, Pre-Emphasis. Indicate whether an angle modulated transmitter uses pre-emphasis.

5.3.2.17. Item 17, Deviation Ratio. Enter the deviation ratio for an angle modulated system. The frequency deviation and modulation frequency must have the same units (for example, hertz [Hz]).

5.3.2.17.1. Deviation Ration = $\frac{\text{Maximum Frequency Deviation}}{\text{Maximum Modulation Frequency}}$

5.3.2.17.2. Bandwidth formulas in Annex J of the *NTIA Manual* use the variable "D" as the maximum frequency deviation.

5.3.2.17.3. D = Maximum Modulation Frequency X Deviation Ratio.

5.3.2.18. Item 18, Pulse Characteristics. Enter the information for pulse modulated transmitters.

5.3.2.18.1. RATE. State the PRR in the number of individual PPS for each pulse rate used.

5.3.2.18.2. WIDTH. Enter the pulse width in microseconds as the time during which the pulse voltage level remains at or above half the peak pulse amplitude.

5.3.2.18.3. RISE TIME. The pulse rise time is the time in microseconds that it takes the pulse to rise in voltage from 10% to 90% of its peak amplitude.

5.3.2.18.4. FALL TIME. The pulse fall time is the time in microseconds that it takes the pulse to fall in voltage from 90% to 10% of its peak amplitude.

5.3.2.18.5. COMP RATIO. The compression ratio is the ratio of the transmitted pulse width to the compressed pulse width in a Linear Frequency Modulated (LFM) pulse modulation system.

5.3.2.19. Item 19, Power. Enter information concerning the transmitter output power.

5.3.2.19.1. Mean. Mean power is the power supplied to the antenna terminals line averaged over a time sufficiently long compared with the period of the lowest frequency encountered in the modulation. For a pulsed system, compare the mean power with the following formula (Mean Power = Peak Power X Duty Cycle)

5.3.2.19.2. PEP. Provide the PEP for all amplitude modulated systems and pulse modulated systems. The PEP is the average power supplied to the antenna terminals by a transmitter during one RF cycle at the highest crest of the modulation envelope.

5.3.2.20. Item 20, Output Device. Enter a description of the final RF power output device (for example, ceramic diode, magnetron, traveling wave tube, transistor, etc.).

5.3.2.21. Item 21, Harmonic Level. Enter the harmonic level of the 2nd and 3rd harmonic in dB relative to the fundamental. Item c of this block contains the relative level in dB of the highest powered harmonic above the 3rd.

5.3.2.22. Item 22, Spurious Level. Enter the maximum value of spurious emission (that does not occur on a harmonic frequency) in dB, relative to the fundamental, outside the -60 dB point of the transmitter emission stated in Item 12. Whenever possible, measure the harmonic and spurious power level from the radiated spectrum of the transmitter. If radiated spectrum measurements are not possible, measure the harmonic power levels at the antenna input terminals.

5.3.2.23. Item 23, FCC Type Acceptance No. Provide a number given to the equipment that has been reviewed and approved by the FCC for commercial use. FCC type acceptance does not exempt equipment from the DoD frequency allocation process.

5.3.2.24. Item 24, Remarks. Enter the level of classification in the classification block. NA must be entered for Non-Applicable items. Enter NAvail for items when appropriate data is not available. However, you should make every effort to enter required items to the greatest degree possible.

5.3.3. Receiver Equipment Characteristics Page: Following the instructions, enter the appropriate information for each item.

5.3.3.1. Item 1, Nomenclature, Manufacturer's Model No. Enter the government nomenclature or the manufacturer's name and model number. Use the JETDS designator when available.

5.3.3.2. Item 2, Manufacturer's Name. Enter the manufacturer's name if available. If a manufacturer's name and model number is listed in Item 1, complete this block.

5.3.3.3. Item 3, Receiver Installation. Enter the specific type of vehicle, ship, plane, or building, etc., where you will install the receiver.

5.3.3.4. Item 4, Receiver Type. Enter the generic class of the receiver by indicating number of superheterodyne stages, modulation type, and purpose (for example, single conversion frequency modulation (FM) communications, homodyne, Doppler pulse radar, double conversion spread-spectrum communications, etc.).

5.3.3.5. Item 5, Tuning Range. Enter the frequency range (Lowest Frequency - Highest Frequency) through which you can tune the receiver. For fixed systems list the range of tunable frequencies obtainable by crystal substitution or cavity adjustment.

5.3.3.6. Item 6, Method of Tuning. Enter the method of tuning by indicating method of effecting change and device insuring frequency stability (for example, autotracking locked loop, interchangeable crystal, manually adjusted synthesizer, etc.). If the equipment is not readily tunable in the field, indicate the means by which tuning is accomplished.

5.3.3.7. Item 7, RF Channeling Capability. Describe the RF channeling capability. For uniformly spaced channels, enter the center frequency of the first channel and channel spacing (for example, 406 MHz, 100 kHz increments); for continuous tuning, enter the lowest frequency and the word "continuous"; for other cases enter a detailed description. If the equipment is not readily tunable in the field, state tuning complexity.

5.3.3.8. Item 8, Emission Designator(s). Enter the emission designator(s) which describes the type emissions received by the receiver. The emission designator must conform to the format in Chapter 9 of the *NTIA Manual*. (See Attachment 2, paragraph A2.5.)

5.3.3.9. Item 9, Frequency Tolerance. Enter the maximum drift from a receiver's center frequency after completion of normal warm-up time. Enter the frequency tolerance in parts per million (ppm) for all emission types except single sideband for which we use Hertz (Hz). Use the following formula to convert frequency drift in Hz to frequency tolerance in ppm:

$$\text{ppm} = \frac{\text{Frequency Drift}}{\text{Receiver Center Frequency}} \times 1{,}000{,}000$$

5.3.3.10. Item 10, Intermediate Frequency (IF) Selectivity. Enter a characterization of the receiver IF selectivity for each receiver IF stage. The -3, -20, and -60 dB values refer to the IF bandwidth containing all spectral components within 3, 20, and 60 dB of the peak IF envelope value of the received signal in the IF stage. If the receiver is a homdyne or TRF receiver, enter "NA" in all three lines of this Item. Enter "NA" in the sections not used.

5.3.3.11. Item 11, RF Selectivity. Enter a characterization of the receiver RF selectivity. The -3, -20, and -60 dB values refer to the RF bandwidth containing all spectral components within 3, 20, and 60 dB of the peak envelope value of the received signal. The preselection type (for example, waveguide cut-off, YIG filter, 6 pole Butterworth, etc.) is also contained in this item.

5.3.3.12. Item 12, IF Frequency. Enter the tuned frequency for each receiver IF stage.

5.3.3.13. Item 13, Maximum Post Detection Frequency. Enter the highest frequency that the receiver recover and demodulate. If the receiver is a pulse modulated system, enter "NA".

5.3.3.14. Item 14, Minimum Post Detection Frequency. This item only applies to multichannel FM frequency-division multiplexed receivers and contains the nominal frequency at the -3 dB point on the LF side of the receiver baseband.

5.3.3.15. Item 15, Oscillator Tuned. Indicate whether the local oscillator for each respective receiver IF stage is tuned below or above the RF center frequency.

5.3.3.16. Item 16, Maximum Bit Rate. Enter the maximum information bit rate in bits per second that the digital equipment can receive.

5.3.3.17. Item 17, Sensitivity. Enter the information detailing the receiver sensitivity.

5.3.3.17.1. SENSITIVITY. The sensitivity is the minimum power in dBm (dB referred to 1 milliwatt [mW]) required at the receiver front end to ensure successful detection and demodulation.

5.3.3.17.2. CRITERIA. The criteria is the basis for the successfully detection and demodulation of a received signal (e.g., signal-to-noise ratio [S/N], signal--to-interference plus noise and distortion (SINAD), bit error ratio (BER), Minimum Discernible Signal (MDS), etc.

5.3.3.17.3. NOISE FIG. The noise figure applies to terrestrial systems and is the noise level in dB that the receiver adds to the received signal.

5.3.3.17.4. NOISE TEMP. The noise temperature is used only for space or satellite earth stations and is entered in degrees Kelvin.

5.3.3.18. Item 18, De-Emphasis. Indicate whether an angle modulated transmitter uses de-emphasis.

5.3.3.19. Item 19, Image Rejection. Enter the ratio of the image frequency signal level required to produce a specified output, to the desired signal level required to produce the same output. For homodyne and TRF receivers "NA" should be entered.

5.3.3.20. Item 20, Spurious Rejection. Enter the value of spurious rejection in dB that the receiver meets or exceeds at all frequencies outside the -60 dB IF bandwidth of the IF stages as detailed in Item 10. Spurious rejection is the ratio of a particular out-of-band frequency signal level required to produce a specified output, to the desired signal level required to produce the same output.

5.3.3.21. Item 21, Remarks . Enter the level of classification in the classification block. Enter NA for non-applicable items. Enter NAvail for items when appropriate data is not available. However, make very effort to enter required items to the greatest degree possible.

5.3.4. Antenna Equipment Characteristics Page: Following the instructions, enter the appropriate information for each item.

5.3.4.1. Item 1, Indicate whether you will use the antenna described on this page for reception, transmission, or both.

5.3.4.2. Item 2, Nomenclature, Manufacturer's Model No. Enter the government nomenclature or manufacturer's name and model number. If available, use the JETDS designator.

5.3.4.3. Item 3, Manufacturer's Name. Enter the manufacturer's name if available. If a manufacturer's model number is listed in Item 1, complete this block.

5.3.4.4. Item 4, Frequency Range. Enter the range of frequencies which the antenna is designed, i.e. the frequency range over which the antenna's radiated output power does not vary by more than 3 dB when measured at a fixed location in the main beam.

5.3.4.5. Item 5, Type. Enter the generic class of the antenna by indicating the physical or electrical size, and generic name of the antenna (for example, half-wave dipole, 5 meter parabolic, etc.).

5.3.4.6. Item 6, Polarization. Enter information relating to the orientation of the propagated wave form from the antenna relative to the ground plane. Polarization is usually either vertical, horizontal, left or right hand circular.

5.3.4.7. Item 7, Scan Characteristics. Describe the antenna's scan pattern or range of motion.

5.3.4.7.1. TYPE. If the antenna steers its beam electronically while the antenna remains stationary enter "Electronic". If the beam is steered by a continuous rotation of the antenna enter "Mechanical". If the antenna beam is not steerable enter "Fixed".

5.3.4.7.2. VERTICAL SCAN. If antenna beam is steerable about a vertical axis enter how the steering is accomplished and enter details in (1) Max Elev, (2) Min Elev, and (3) Scan Rate. If the antenna beam is not steerable about a vertical axis but is mountable in various orientations enter "Adjustable Mount" and enter details in (1) Max Elev, (2) Min Elev, and enter "NA" in (3) Scan Rate.

5.3.4.7.2.1. If the antenna beam is not steerable and is set up in only one orientation enter "NA". (1) Max Elev. Enter the highest scan or positive angle above the horizon for the

antenna. (2) Min Elev. Enter the lowest angle relative to the horizon that the antenna can scan or be positioned. (3) Scan Rate. Enter the vertical angular scanning rate in scans per minute. c. HORIZONTAL SCAN.

5.3.4.7.2.2. If antenna beam is steerable about a horizontal axis, enter how the steering is accomplished and provide details in (1) Sector Scanned, and (2) Scan Rate. If the antenna beam is not steerable about a horizontal axis but is mountable in different horizontal orientations enter "Adjustable Mount" and provide details in (1) Sector Scanned and enter "NA" in (2) Scan Rate.

5.3.4.7.2.3. If the antenna is not steerable and can be set up in only one orientation, such as a vertical monopole whip antenna, enter "NA". (1) Sector Scanned. Enter the angular range within an antenna's horizontal plane through which the antenna may scan or through which the orientation of the antenna are adjusted. (2) Scan Rate. Enter the horizontal angular scanning rate in scans per minute.

5.3.4.8. Item 8, GAIN.

5.3.4.8.1. MAIN BEAM. Enter the maximum gain of the antenna relative to an isotropic radiator.

5.3.4.8.2. 1st MAJOR SIDE LOBE. Enter the nominal gain of the 1st major side lobe of the main beam and the angular displacement of the side lobe from the main beam in degrees.

5.3.4.9. Item 9, BEAMWIDTH.

5.3.4.9.1. HORIZONTAL. Enter the angle within the main beam of the antenna which bounds the horizontal limits of the radiated signal in which the output power is within 3 dBs of the total output power.

5.3.4.9.2. VERTICAL. Enter the angle within the main beam of the antenna which bounds the vertical limits of the radiated signal in which the output power is within 3 dBs of the total output power.

5.3.4.10. Item 10, Remarks. Enter the level of classification in the classification block. Enter NA for Non-Applicable items. Enter NAvail for items when appropriate data is not available. However, make every effort to enter required items to the greatest degree possible.

5.3.5. NTIA General Information Page. Following the instructions, enter the appropriate information for each item.

5.3.5.1. Item 1, Application Title. Enter the government nomenclature or the manufacturer's name and model number. Use the JETDS designator when available.

5.3.5.2. Item 2, System Nomenclature. Enter the nomenclature of the system for which the specified system in Item 1 is a subsystem. Use the JETDS designator when available.

5.3.5.3. Item 3, Stage of Allocation. Mark the appropriate block using the following NTIA definitions.

5.3.5.3.1. STAGE 1 - Conceptual. The initial planning effort has been completed, including proposed frequency bands and other available characteristics.

5.3.5.3.2. STAGE 2 - Experimental. The preliminary design has been completed. Radiation using test equipment or preliminary models may be required.

5.3.5.3.3. STAGE 3 - Developmental. The major design has been completed. Radiation may be required during testing.

5.3.5.3.4. STAGE 4 - Operational. Development has been essentially completed, and final operating constraints or restrictions required to assure compatibility need to be identified.

5.3.5.4. Item 4, Frequency Requirements. Enter the required frequency band(s). For equipment designed to operate only at a single frequency, enter the frequency of operation. Enter the emission designator in this block and ensure it conforms to the format set forth in Chapter 9 of the *NTIA Manual*. (See Attachment 2, paragraph A2.5.2.2.3.)

5.3.5.5. Item 5, Purpose of System, Operational and System Concepts. Enter the purpose of the overall system, for example: collect and disseminate meteorological data using satellite techniques; provide for the transmission of digital voice and data by means of LOS or tropo modes of propagation. Also indicate whether the system has a wartime function.

5.3.5.6. Item 6, Information Transfer Requirements. Enter a description of what type of information you are transmitting or receiving and the rate of transmission.

5.3.5.7. Item 7, Estimated Initial Cost of System. Enter information that gives an indication of the relative complexity and importance of the system as a function of cost. State the entry in terms of the current year dollars to deliver a specified quantity of products and service.

5.3.5.8. Item 8, Target Date For. Enter the dates when: application approval is required; use of the system will begin; the system will be taken permanently out of service

5.3.5.9. Item 9, System Relationship and Essentiality. Enter a description of how the system supports a given mission and how it interfaces with other systems to support the mission.

5.3.5.10. Item 10, Replacement Information. Identify RF system(s) which may be replaced by the proposed system.

5.3.5.11. Item 11, Related Analysis and/or Test Data. Identify reports, studies, analyses, predictions, and test results related to the system under review.

5.3.5.12. Item 12, Number of Mobile Units. Enter the number of mobile units you will deploy.

5.3.5.13. Item 13, Geographical Area. Enter the geographical location(s) of use for the current and subsequent stage(s). Provide geographical coordinates if available. The geographical location of stages preceding the current application submission must be entered as "NA".

5.3.5.14. Item 14, Line Diagram. Enter the page number of the line diagram. Submit a diagram with each application. The diagram must show all the major interrelated RF components of the system of platform. Display each RF link and label it with directions of transmission and frequency range.

5.3.5.15. Item 15, Space Systems. Enter the page number of space system information provided for space-borne components of a space system. Provide the data in accordance with Chapter 10.7.3. of the *NTIA Manual*.

5.3.5.16. Item 16, Type of Service(s) for Stage 4. Enter the type of service(s) that will apply to the equipment in the operational stage. Valid type of service designators are described in Chapter 6 of the *NTIA Manual* (See Attachment 2, paragraph A2.3.1.). If the service is not in accordance with the NTIA allocation tables, enter a justification.

5.3.5.17. Item 17, Station Class(es) for Stage 4. Enter the station class(es) that applies or will apply to the equipment in the operational stage. Valid station classes are described in Chapter 6 of the *NTIA Manual*. (See Attachment 2, paragraph A2.3.1.)

5.3.5.18. Item 18, Remarks. Enter information that continues and/or expounds upon entries in preceding items.

5.3.5.19. General. Enter the highest level of security classification for the entire document in the classification block. Place the classification marking in bold letters which are larger than the largest typed letters on the form. If the DoD Form 1494 is classified, mark each block on the form with the appropriate classification. Provide downgrading instructions if the application is classified. Enter NA for Non-Applicable items. Enter NAvail for items when appropriate data is not available.

5.3.6. Foreign Coordination General Information Page. Following the instructions, enter the appropriate information for each item.

5.3.6.1. Item 1, Application Title. Enter the Government nomenclature or the manufacturer's name and model number. Use the JTEDS designator when available. Keep the title UNCLASSIFIED.

5.3.6.2. Item 2, System Nomenclature. Enter the nomenclature of the system for which the specified system in Item 1 is a subsystem. Use the JETDS designator when available.

5.3.6.3. Item 3, Stage of Allocation. Mark the appropriate block using the following NTIA definitions

5.3.6.3.1. STAGE 1 - Conceptual. The initial planning effort has been completed, including proposed frequency bands and other available characteristics.

5.3.6.3.2. STAGE 2 - Experimental. The preliminary design has been completed and radiation using test equipment or preliminary models may be required.

5.3.6.3.3. STAGE 3 - Developmental. The major design has been completed and radiation may be required during testing.

5.3.6.3.4. STAGE 4 - Operational. Development has been essentially completed, and final operating constraints or restrictions required to assure compatibility need to be identified.

5.3.6.4. Item 4, Frequency Requirements**.** Enter the required frequency band(s). For equipment designed to operate only at a single frequency, enter the frequency of operation. Enter the emission designator in this block and ensure it conforms to the format in Chapter 9 of the *NTIA Manual*. (See Attachment 2, paragraph A2.5.)

5.3.6.5. Item 5, Proposed Operating Locations. Enter the specific host nations or areas of use. If geographical coordinates for specific locations are available, provide them on a separate page for each country since specific locations are generally released only to the host nation. Ensure that all areas of intended operations are listed and foreign disclosure authority exists for each area.

5.3.6.6. Item 6, Purpose of System, Operational and System Concepts. Enter the purpose of the overall system (for example: collect and disseminate meteorological data using satellite techniques; transmission of radar data for ATC; provide navigational signal from which many users

are able to derive navigation data). Also include information on operational and system concepts. This item is also used to indicate the system has a wartime function.

5.3.6.7. Item 7, Information Transfer Requirements. Enter a description of what type of information you are transmitting or receiving and the rate of transmission.

5.3.6.8. Item 8, Number of Units. Enter the total number of units planned for the stage review requested and subsequent stages.

5.3.6.9. Item 9, Replacement Information. Identify existing RF system(s) which may be replaced by the proposed system.

5.3.6.10. Item 10, Line Diagram. Enter the page number of the line diagram(s). The line diagram is a pictorial diagram which you must submit with all DD Form 1494 applications. The line diagram must show all the major interrelated RF components of the overall platform. Display each RF link and label it with the directions of transmission, frequency range, and the J/F-12 (USM-CEB J-12 Working Group) number of any previously allocated RF component.

5.3.6.11. Item 11, Space Systems. Enter the page number of space system information which you are providing for space-borne components of a space system. Provide this data in accordance with Chapter 10.7.3. of the *NTIA Manual*.

5.3.6.12. Item 12, Projected Operational Deployment Date. Enter the date by which you need to receive host nation frequency supportability comments.

5.3.6.13. General. Enter the highest level of security classification for the entire document in the classification block. Place the classification marking in bold letters which are larger than the largest typed letters on the form. If the DD Form 1494 is classified, mark each block on the form with the appropriate classification. Provide downgrading instructions if the application is classified. Enter NA for Non-Applicable items. Enter NAvail for items when appropriate data is not available.

WILLIAM J. DONAHUE, Lt General, USAF
Director,Communications and Information

Attachment 1

GLOSSARY OF REFERENCES, ABBREVIATIONS, ACRONYMS, AND TERMS

References

AFDIR 37-135, *Air Force Address Directory* (will be converted to AFDIR 33-335)

AFI 10-707, *Spectrum Interference Resolution Program*

AFI 31-401, Managing the Information Security Program

AFI 33-106, *Managing High Frequency Radios, Land Mobile Radios, Cellular Telephones, and the Military Affiliate Radio System*

AFI 33-111, *Telephone Systems Management*

AFI 33-118, *Radio Frequency Spectrum Management*

AFI 36-5001, *Organization and Function of the Civil Air Patrol*

AFPD 33-1, *Command, Control, Communications, and Computer (C4)* Systems

DoC NTIA, *Manual of Regulations and Procedures for Federal Radio Frequency Management*(*NTIA Manual*)

DoDD 4650.1, *Management and Use of the Radio Frequency Spectrum,* June 24, *1987*

DoDR 5200.1, *Information Security Program Regulation,* June 1986, with Changes 1 and 2

Executive Order 12958, *Classified National Security Information*

Federal Communications Commission Rules and Regulations, Part 95, Subpart D

The Communications Act of 1934

Abbreviations and Acronyms

AAG—Aeronautical Assignment Group

ACC—Air Combat Command

ACMI—Aircraft Maneuvering Instrumentation

AETC—Air Education and Training Command

AFC—Area Frequency Coordinator

AFCA—Air Force Communications Agency

AFDIR—Air Force Directory

AFFMA—Air Force Frequency Management Agency

AFI—Air Force Instruction

AFMAN—Air Force Manual

AFMC—Air Force Materiel Command

AFPD—Air Force Policy Directive

AFRES—Air Force Reserve

AFTRCC—Aerospace and Flight Test Radio Coordinating Council

AM—Amplitude Modulation

AMC—Air Mobility Command

ANG—Air National Guard

ANGRC—Air National Guard Readiness Center

AOR—Area of Responsibility

APF—Automated Processing Format

ARFA—Allied Radio Frequency Agency

ASCII—American Standard Code for Information Interchange

ASD(C3I)—Assistant Secretary of Defense (Command, Control, Communications, and Intelligence)

ASR—Airport Surveillance Radar

ATC—Air Traffic Control

ATCRBS—Air Traffic Control Radar Beacon System

AUTODIN—Automatic Digital Network

BER—Bit Error Rate

C4—Command, Control, Communications, and Computers

CB—Citizen Band

CCF—Consolidated Computer Facility

CCIR—International Radio Consultative Committee

C-E—Communications-Electronics

CINC—Commander in Chief

CINCEUR—Commander-in-Chief, European Command

CINCLANT—Commander-in-Chief, Atlantic Command

CINCPAC—Commander-in-Chief, Pacific Command

CINCSOC—Commander-in-Chief, Special Operations Command

CINCSPACE—Commander-in-Chief, Space Command

CINCSTRAT—Commander-in-Chief, Strategic Command

CINCTRANS—Commander-in-Chief, Transportation Command

CINCUSACOM—Commander-in-Chief, United States Atlantic Command

COMSAT—Communications Satellite (Corporation)

CONUS—Continental United States

CW—Continuous Wave

dB—Decibel

dBm—dB referred to 1 milliwatt

DCS—Defense Communications System

DDN—Defense Data Network

DISA—Defense Information Systems Agency

DISN—Defense Information System Network

DME—Distance Measuring Equipment

DoC—Department of Commerce

DoD—Department of Defense

DoE—Department of Energy

DoI—Department of Interior

DSN—Defense Switched Network

ECM—Electronic Countermeasures

EMC—Electromagnetic Compatibility

EMI—Electromagnetic Interference

EPIRB—Emergency Position-Indicating Radio Beacon

ERP—Effective Radiated Power

ESMC—Eastern Space and Missile Center

ESC—Electronic Systems Center

EUCOM—European Command

EW—Electronic Warfare

FAA—Federal Aviation Administration

FAS—Frequency Assignment Subcommittee

FB—Base Station

FCC—Federal Communications Commission

FM—Frequency Modulation

FMO—Frequency Management Office

FOA—Field Operating Agency

FP—Frequency Panel (USMCEB)

FRRS—Frequency Resource Records System

FSS—Flight Service Station

GCA—Ground Control Approach

GCCS—Global Command and Control System

GHz—Gigahertz

GMF—Government Master File

GMT—Greenwich Mean Time

GW—Gigawatt

HF—High Frequency

Hz—Hertz

ICAO—International Civil Aviation Organization

ID—Identification

IF—Intermediate Frequency

IFF—Identification, Friend or Foe

IFRB—International Frequency Registration Board

ILS—Instrument Landing System

INMARSAT—International Maritime Satellite

IRAC—Interdepartment Radio Advisory Committee

ISM—Industrial, Scientific, and Medical

ITU—International Telecommunications Union

JCS—Joint Chiefs of Staff

JETDS—Joint Electronics Type Designation System

J/F-12—USMCEB J-12 Working Group

JFMO—Joint Frequency Management Office

JSC—Joint Spectrum Center

JTIDS—Joint Tactical Information Distribution System

kHz—Kilohertz

kW—Kilowatt

LAN—Local Area Network

LF—Low Frequency

LMR—Land Mobile Radio

LORAN—Long Range Aid to Navigation

LOS—Line of Sight

LRR—Long Range Radar

MAG—Military Advisory Group

MAJCOM—Major Command

MARS—Military Affiliate Radio System

MF—Medium Frequency

MHz—Megahertz

MLS—Microwave Landing System

MM—Maritime Mobile

M Notes—Minute Notes

MRFL—Master Radio Frequency List

MSL—Mean Sea Level

MW—Megawatt

mW—Milliwatt

NASA—National Aeronautics and Space Administration

NATO—North Atlantic Treaty Organization

NAVAID—Navigational Aids

NBS—National Bureau of Standards

NEXRAD—Next Generation Radar

NIB—Noninterference Basis

NTIA—National Telecommunications and Information Administration

OCONUS—Outside the Continental United States

OPLAN—Operation Plan

OUS&P—Outside United States and Possessions

PACAF—Pacific Air Forces

PACOM—Pacific Command

PAR—Precision Approach Radar

PC—Personal Computer

PD—Pulse Duration

PEP—Peak Envelope Power

PPS—Pulses Per Second

PRR—Pulse Repetition Rate

RACES—Radio Amateur Civil Emergency Services

RACON—Radar Beacon

RADAR—Radio Detection and Ranging

RADHAZ—Radiation Hazard

RDT&E—Research, Development, Test, and Evaluation

RF—Radio Frequency

RFA—Radio Frequency Authorization

RFI—Radio Frequency Interference

RR—ITU Radio Regulations

RSEC—Radar Spectrum Engineering Criteria

SAR—Search and Rescue

SD—Space Division

SDI—Strategic Defense Initiative

SFAF—Standard Frequency Action Format

SGLS—Space Ground Link Subsystem

SIF—Selective Identification Feature

SINAD—Signal-to-Interference plus Noise-and-Distortion

S/N—Signal-to-Noise Ratio

SPS—Spectrum Planning Subcommittee

SSB—Single-Sideband

STU-III—Secure Telephone Unit-III

TACAN—Tactical Air Navigation

TAG—The Adjutant General

TFMS—Tactical Frequency Management System

THz—Terahertz

TRSB—Time-Referenced Scanning Beams

UAV—Unmanned Aerial Vehicle

UGT—Universal Greenwich Time

UHF—Ultra High Frequency

USAF—United States Air Force

USD(A)—Under Secretary of Defense (Acquisition)

USN—United States Navy

USMCEB—United States Military Communications-Electronics Board

US&P—United States and Possessions

VHF—Very High Frequency

VLF—Very Low Frequency

VOR—VHF Omnidirectional Range

VORTAC—VOR Tactical Air Navigation

W—Watt

WAFC—Western Area Frequency Coordinator

WSMC—Western Space and Missile Center

WSMR—White Sands Missile Range

Terms

NOTE:

The following are definitions of frequency management terms extracted from international, national, and DoD regulations and directives. Where appropriate, the source is given in parentheses following each definition: (**RR**)--International Telecommunications Union Radio Regulations, (**NTIA**)--National Telecommunications and Information Administration Manual of Regulations and procedures for Federal Radio Frequency Managment.

Allocation (of a frequency band)—Entry in the Table of Frequency Allocations of a given frequency band for its use by one or more (terrestrial or space) radio communication services or the radio astronomy service under specified conditions. This term shall also be applied to the frequency band concerned. **(RR)**

Allotment (of a radio frequency or radio frequency channel)—Entry of a designated frequency channel in an agreed plan, adopted by a component conference, for use by one or more administrations for a (terrestrial or space) radiocommunications service in one or more identified countries or geographical areas and under specified conditions. **(RR)**

Amateur Service—A radiocommunication service of self-training, intercommunication, and technical investigation carried out by amateurs (i.e., duly authorized persons interested in radio techniques solely with a personal aim and without pecuniary interest). **(RR)**

Assigned Frequency—The center of the frequency band assigned to a station. **(NTIA)**

Assigned Frequency Band—The frequency band within which the emission of a station is authorized; the width of the band equals the necessary bandwidth plus twice the absolute value of the frequency tolerance. Where space stations are concerned, the assigned frequency band includes twice the maximum Doppler shift that may occur in relation to any point of the Earth's surface. **(RR)**

Assignment (of a radio frequency or radio frequency channel)—Authorization given by an administration for a radio station to use a RF or RF channel under specified conditions. **(RR)**

Authorized Bandwidth—The necessary bandwidth required for transmission and reception of intelligence (does not include allowance for transmitter drift or Doppler shift). **(NTIA)**

Broadcasting Service—A radiocommunication service in which the transmissions are intended for direct reception by the general public. This service may include sound, television, or other types of

transmissions. **(RR)**

Channeling Plan—The plan by which the frequencies within a frequency band are to be assigned.

Characteristic Frequency—A frequency easily identified and measured in a given emission. A carrier frequency may, for example, be designated as the characteristic frequency. **(RR)** (see also **Reference Frequency**).

Coordination Distance—Distance on a given azimuth from an Earth station beyond which a terrestrial station, sharing the same frequency band, neither causes nor is subject to interference emissions greater than a permissible level. **(RR)**

Earth Station—A station located either on the Earth's surface or within the major portion of the Earth's atmosphere and intended for communication with one or more space stations, or with one or more stations of the same kind by means of one or more reflecting satellites or other objects in space. **(RR)**

Electromagnetic Compatibility (EMC)—(1) The ability of systems, equipment, and devices that utilize the electromagnetic spectrum to operate in their intended operational environments without suffering unacceptable degradation or causing unintentional degradation because of electromagnetic radiation or response. It involves the application of sound electromagnetic spectrum management; system, equipment, and device design configuration that ensures interference-free operation; and clear concepts and doctrines that maximize operational effectiveness (JP 1-02.) (2) The condition that prevails when telecommunications equipment is performing its individually designed function in a common electromagnetic environment without causing or suffering unacceptable degradation due to unintentional electromagnetic interference (EMI) to or from other equipment in the same environment. **(RR)**

Electromagnetic Interference (EMI)—Any electromagnetic disturbance that interrupts, obstructs, or otherwise degrades or limits the effective performance of electronic or electrical equipment. It is induced intentionally, as in some forms of electronic warfare (EW), or unintentionally, as a result of spurious emissions and responses, intermodulation products, and the like.

Electromagnetic Spectrum—(1) The range of frequencies of electromagnetic radiation from zero to infinity. It is divided into 26 alphabetically designated bands. **(JP 1-02)**

Fixed Service—A radiocommunication service between specified fixed points. **(RR)**

Frequency Allocation—See Allocation (of a frequency band).

Frequency Allotment—See Allotment (of a frequency or radio frequency channel).

Frequency Assignment—See Assignment (of a radio frequency or radio frequency channel).

Frequency Assignment, Group—Frequencies assigned to a MAJCOM to satisfy short-term requirements throughout the US&P. Group assignments are not assigned exclusively to a single MAJCOM.

Frequency Assignment, Temporary—An assignment effective for 90 days or less.

Frequency Tolerance—The maximum permissible departure by the center frequency of the frequency band occupied by an emission from the assigned frequency, or by the characteristic frequency of an emission from the reference frequency expressed in part 106 or hertz (Hz). **(RR)**

Harmful Interference—Interference that endangers the functioning of a radio navigation service or other safety services, or that seriously degrades, obstructs, or repeatedly interrupts a radio communication service operating in accordance with the radio regulations. **(RR)**

Hertz (Hz)—A unit of frequency equal to one cycle per second. **(NTIA)**

Industrial, Scientific, and Medical (ISM) Applications (of radio frequency—energy) Operation of equipment or appliances designed to generate and use local radio-frequency energy for industrial, scientific, medical, domestic, or similar purposes, excluding applications in the field of telecommunications. **(RR)**

Instrument Landing System (ILS)—A system of radio navigation intended to assist aircraft in landing which provides lateral and vertical guidance, which may include indications of distance from the optimum point of landing (JP 1-02.) A radionavigation system that provides aircraft with horizontal and vertical guidance just before and during landing and , at certain fixed points, indicates the distance to the reference point of landing. **(RR)**

Instrument Landing System Glide Path—A system of vertical guidance embodied in the ILS that indicates the vertical deviation of the aircraft from its optimum path of descent. **(RR)**

Instrument Landing System Localizer—A system of horizontal guidance embodies in the ILS that indicates the horizontal deviation of the aircraft from its optimum path of descent along the axis of the runway. **(RR)**

Interference—The effect of unwanted energy due to one or a combination of emissions, radiations, or inductions upon reception in a radio communication system, manifested by any performance degradation, misinterpretation, or loss of information that is extracted in the absence of such unwanted energy. **(RR)**

Ionospheric Sounder—A device that transmits signals for the purpose of determining ionospheric conditions. **(NTIA)**

Land Station—A station in the mobile service not intended to be used while in motion. **(RR)**

Low-Power Communication Device—A restricted radiation device, exclusive of those employing conducted or guided RF techniques, used for the transmission of signs, signals (including control signals), writing, images and sounds or intelligence of any nature by radiation of electromagnetic energy. Examples: Wireless microphone, phonograph oscillator, radio-controlled garage door opener, and radio-controlled models. **(RR)**

Marker Beacon—A transmitter in the aeronautical radionavigation service that vertically radiates a distinctive pattern to provide position information to aircraft. **(RR)**

Mean Power (of a radio transmitter)—The average power supplied to the antenna transmission line by a transmitter during an interval of time sufficiently long compared with the lowest frequency encountered in the modulation taken under normal operating conditions. **(RR)**

Meteorological Aids Service—A radiocommunication service used for meteorological, hydrological observations and exploration. **(RR)**

Microwave Landing System (MLS)—A radionavigation system that provides the same information as an ILS but operates in the 5000-5250 MHz band.

Mobile Service—A radiocommunication service between mobile and land stations, or between mobile stations. **(RR)**

Mobile Station—A station in the mobile service intended to be used while in motion or during halts at unspecified points. **(RR)**

Necessary Bandwidth—For a given class of emission, the width of the frequency band which is

minimally sufficient to ensure the transmission of information at the rate, and with the quality, required under specified conditions. **(RR)**

Nominal Coordination Distance—The maximum coordination distance for flat terrain on an overland path or, if applicable, on an over-water path. It does not take into account the effects of possible terrain shielding.

Peak Envelope Power (PEP) (of a radio transmitter)—The average power supplied to the antenna transmission line by a transmitter during one RF cycle at the crest of the modulation envelope taken under normal operating conditions. **(RR)**

Perimeter Protection System—A field disturbance sensor that uses buried cables installed around a facility to detect any unauthorized entry or exit.

Radiation Hazard (RADHAZ)—RADHAZs are of three types. One deals with the effects on the human body of nonionizing radiation caused by exposure to high-power transmitters or electronic equipment which produces x rays. The other types deal with the danger of RF transmissions accidentally detonating explosive devices or igniting fuels.

Radio Astronomy—Astronomy based on the reception of radio waves of cosmic origin. **(RR)**

Radio Frequency (RF) Spectrum—The RF spectrum includes the frequencies from 3.0 kHz to 400 GHz. The presently allocated spectrum is from 9 kHz to 381 GHz.

Radiolocation—Radiodetermination used for purposes other than those of radionavigation. **(RR)**

Range Commander—In this publication, the commander of an Air Force test or tactical range.

Reference Frequency—A frequency having a fixed and specific position with respect to the assigned frequency. The displacement of this frequency with respect to the assigned frequency has the same absolute value and sign that the displacement of the characteristic frequency has with respect to the center of the frequency band occupied by the emission. **(RR)** (See also **Characteristic Frequency.**)

Restricted Radiation Device—A device in which the generation of RF energy is intentionally incorporated into the design, and in which the RF energy is conducted along wires or is radiated, exclusive of transmitter for which provisions are made under those parts of Chapter 7 of the *NTIA Manual* other than part 7.9, and exclusive of ISM equipment. **(NTIA)**

Space Operation Service—A radiocommunication service concerned exclusively with the operation of spacecraft, particularly space tracking, space telemetry, and space telecommand. These functions will normally be provided within the service in which the space station is operating. **(RR)**

Space Station—A station located on an object which is beyond, is intended to go beyond, or has been beyond, the major portion of the Earth's atmosphere. **(RR)**

Space Telemetry—The use of telemetry for the transmission from a space station of results of measurements made in a spacecraft, including those relating to the functioning of spacecraft. **(RR)**

Spurious Emission—Emission on a frequency or frequencies that are outside the necessary bandwidth and the level of which is reduced without affecting the corresponding transmission of information. Spurious emissions include harmonic emissions, intermodulation products and frequency conversion products, but exclude out-of-band emissions. **(RR)**

Standard Frequency and Time Signal Service—A radio communication service for scientific, technical and other purposes, providing the transmission of specified frequencies, time signals, or both, of

stated high precision, intended for general reception. (**RR**)

Telecommunication—Any transmission, emission, or reception of signs, signals, writing, images, and sounds or intelligence of any nature by wire, radio, optical, or other electromagnetic systems. **(RR)**

Telemetry—The use of telecommunication for automatically indicating or recording measurements at a distance from the measuring instrument. **(RR)**

United States and Possessions (US&P)—The term "United States and Possessions" includes the 50 States, the District of Columbia, the Commonwealth of Puerto Rico, and the territories and possessions (but less the Canal Zone).

Attachment 2

STANDARD FREQUENCY ACTION FORMAT DATA DICTIONARY

A2.1. Country, State, and Area Codes . These codes are used in SFAF Items 300, 301, 400, 401, 530, and 531, as applicable.

A2.1.1. Country Codes. These codes are identical to those used by the ITU, except that US, and US&P were added. USA was modified to include the District of Columbia.

Code	Country
ABW	Aruba
AFG	Afghanistan (Islamic State of)
AFS	South Africa (Republic of)
AGL	Angola (Republic of)
AIA	Anguilla
ALB	Albania (Republic of)
ALG	Algeria (People's Democratic Republic of)
AMS	Saint Paul and Amsterdam Islands
AND	Andorra (Principality of)
AOE	Western Sahara
ARG	Argentine Republic
ARS	Saudi Arabia (Kingdom of)
ARM	Armenia (Republic of)
ASC	Ascension
ATA	Antarctic
ATG	Antigua and Barbuda
ATN	Netherlands Antilles
AUS	Australia
AUT	Austria
AZE	Azerbaijani Republic
AZR	Azores
B	Brazil (Federative Republic of)
BAH	Bahamas (Commonwealth of the)
BDI	Burundi (Republic of)
BEL	Belgium
BEN	Benin (Republic of)
BER	Bermuda
BFA	Burkina Faso

BGD	Bangladesh (People's Republic of)
BHR	Bahrain (State of)
BIH	Bosnia & Herzegovina (Republic of)
BIO	British Indian Ocean Territory
BLR	Belarus (Republic of)
BLZ	Belize
BOL	Bolivia (Republic of)
BOT	Botswana (Republic of)
BRB	Barbados
BRM	Myanmar (Union of)
BRU	Brunei Darussalam
BTN	Bhutan (Kingdom of)
BUL	Bulgaria (Republic of)
CAF	Central African Republic
CAN	Canada
CAR	Caroline Islands
CBG	Cambodia (Kingdom of)
CHL	Chile (except Easter Island)
CHN	China (People's Republic of)
CHR	Christmas Island (Indian Ocean)
CKH	Cook Islands
CLM	Colombia (Republic of)
CLN	Sri Lanka (Democratic Socialist Republic of)
CME	Cameroon (Republic of)
CNR	Canary Islands
COG	Congo (Republic of the)
COM	Comoros (Islamic Federal Republic of the)
CPV	Cape Verde (Republic of)
CRO	Crozet Archipelago
CTI	Cote d'Ivoire (Republic of)
CTR	Costa Rica
CUB	Cuba
CVA	Vatican City State
CYM	Cayman Islands
CYP	Cyprus (Republic of)
CZE	Czech Republic
D	Germany (Federal Republic of)
DGA	Diego Garcia

DJI	Djibouti (Republic of)
DMA	Dominica (Commonwealth of)
DNK	Denmark
DOM	Dominican Republic
E	Spain
EGY	Egypt (Arab Republic of)
EQA	Ecuador
ERI	Eritrea
ERS	Estonia (Republic of)
ETH	Ethiopia
F	France
FJI	Fiji (Republic of)
FLK	Falkland Islands (Malvinas)
FIN	Finland
FSM	Micronesia (Federated States of)
G	United Kingdom of Great Britain and Northern Ireland
GAB	Gabonese Republic
GCA	Territories of the United Kingdom in Region 1
GCB	Territories of the United Kingdom in Region 2
GCC	Territories of the United Kingdom in Region 3
GDL	Guadeloupe (French Department of)
GEO	Georgia (Republic of)
GHA	Ghana
GIB	Gibraltar
GMB	Gambia (Republic of the)
GNB	Guinea-Bissau (Republic of)
GNE	Equatorial Guinea (Republic of)
GRC	Greece
GRD	Grenada
GRL	Greenland
GTM	Guatemala (Republic of)
GUF	Guiana (French Department of)
GUI	Guinea (Republic of)
GUM	Guam (also see MRA)
GUY	Guyana
HKG	Hong Kong
HND	Honduras (Republic of)
HNG	Hungary (Republic of)

HOL	Netherlands (Kingdom of the)
HRV	Croatia (Republic of)
HTI	Haiti (Republic of)
HWL	Howland Island
I	Italy
ICO	Cocos Keeling Islands
IND	India (Republic of)
INS	Indonesia (Republic of)
IRL	Ireland
IRN	Iran (Islamic Republic of)
IRQ	Iraq (Republic of)
ISL	Iceland
ISR	Israel (State of)
J	Japan (includes Iwo Jima, Marcus Island, Ryu Kyu Islands)
JAR	Jarvis Island
JMC	Jamaica
JON	Johnston Island
JOR	Jordan (Hashemite Kingdom of)
KAZ	Kazakhstan (Republic of)
KEN	Kenya (Republic of)
KER	Kerguelen Islands
KGZ	Kyrgyz Republic
KIR	Kiribati (Republic of)
KOR	Korea (Republic of)
KRE	People's Democratic Republic of Korea
KWT	Kuwait (State of)
LAO	Laos People's Democratic Republic
LBN	Lebanon
LBR	Liberia (Republic of)
LBY	Libya (Socialist People's Libyan Arab Jamahiriya)
LCA	Saint Lucia
LIE	Liechtenstein (Principality of)
LSO	Lesotho (Kingdom of)
LTU	Lithuania (Republic of)
LUX	Luxembourg
LVA	Latvia (Republic of)
MAC	Macao
MAU	Mauritius (Republic of)

MCO	Monaco (Principality of)
MDA	Moldova (Republic of)
MDG	Madagascar (Republic of)
MDR	Madeira
MDW	Midway Islands
MEX	Mexico
MHL	Marshall Islands (Republic of the)
MLA	Malaysia
MLD	Maldives (Republic of)
MLI	Mali (Republic of)
MLT	Malta
MNG	Mongolia
MOZ	Mozambique (Republic of)
MRA	Mariana Islands (except Guam)
MRC	Morocco (Kingdom of)
MRN	Marion Island
MRT	Martinique (French Department of)
MSR	Montserrat
MTN	Mauritania (Islamic Republic of)
MWI	Malawi
MYT	Mayotte Island
NCG	Nicaragua
NCL	New Caledonia
NFK	Norfolk Island
NGR	Niger (Republic of the)
NIG	Nigeria (Federal Republic of)
NIU	Niue Island
NMB	Namibia (Republic of)
NOR	Norway
NPL	Nepal
NRU	Nauru (Republic of)
NZL	New Zealand
OCE	French Polynesia
OMA	Oman (Sultanate of)
PAK	Pakistan (Islamic Republic of)
PAQ	Easter Island (Chile)
PHL	Philippines (Republic of the)
PHX	Phoenix Islands

PLM	Palmyra Island (some 50 islands make up Atoll of Palmyra)
PNG	Papua New Guinea
PNR	Panama (Republic of)
POL	Poland (Republic of)
POR	Portugal
PRG	Paraguay (Republic of)
PRU	Peru
PTC	Pitcairn Island
PTR	Puerto Rico (including Culebra, Mona, and Vieques) (not for use in GMF; for ITU use only)
QAT	Qatar (State of)
REU	Reunion (French Department of)
ROD	Rodriquez
ROU	Romania
RUS	Russian Federation
RRW	Rwandese Republic
S	Sweden
SCN	Saint Christopher and Nevis
SDN	Sudan (Republic of the)
SEN	Senegal (Republic of)
SEY	Seychelles (Republic of)
SHN	Saint Helena
SLM	Solomon Islands
SLV	El Salvador (Republic of)
SMA	American Samoa
SMO	Western Samoa (Independent State of)
SMR	San Marino (Republic of)
SNG	Singapore (Republic of)
SOM	Somali Democratic Republic
SPM	St. Pierre and Miquelon (French Department of)
SRL	Sierra Leone
STP	Sao Tome and Principe (Democratic Republic of)
SUI	Switzerland (Confederation of)
SUR	Suriname (Republic of)
SVK	Slovak Republic
SVN	Slovenia (Republic of)
SWN	Swan Islands

SWZ	Swaziland (Kingdom of)
SYR	Syrian Arab Republic
TCA	Turks and Caicos Islands
TCD	Chad (Republic of)
TCH	Czech and Slovak Federal Republic
TGO	Togoles Republic
THA	Thailand
TJK	Tajikistan (Republic of)
TKL	Tokelau Islands
TKM	Turkmenistan
TMP	East Timor
TON	Tonga (Kingdom of)
TRC	Tristan da Cunha
TRD	Trinidad and Tobago
TUN	Tunisia
TUR	Turkey
TUV	Tuvalu
TZA	Tanzania (United Republic of)
UAE	United Arab Emirates
UGA	Uganda (Republic of)
UKR	Ukraine
URG	Uruguay (Eastern Republic of)
US	The 50 United States and the District of Columbia
USA	The 48 contiguous States of the United States of America and the District of Columbia (excludes Alaska and Hawaii)
UZB	Uzbekistan (Republic of)
US&P	The US (50 States and the District of Columbia, the Commonwealth of Puerto Rico, and the territories and possessions)
VCT	Saint Vincent and the Grenadines
VEN	Venezuela (Republic of)
VIR	United States Virgin Islands (St. Croix, St. John, St. Thomas) (not for use in GMF; for ITU use only)
VRG	British Virgin Islands
VTN	Viet Nam (Socialist Republic of)
VUT	Vanuatu (Republic of)
WAK	Wake Island

WAL	Wallis and Futuna Islands
YEM	Yemen (Republic of)
YUG	Yugoslavia (Federal Republic of)
ZAI	Zaire (Republic of)
ZMB	Zambia (Republic of)
ZWE	Zimbabwe (Republic of)

A2.1.2. United States Possession and Trust Territory Codes:

Code	Area
GUM	Guam
HWL	Howland Island
JAR	Jarvis Island
JON	Johnston Island (including Sand Island)
MDW	Midway (includes Eastern and Sand Islands)
MRA	Mariana Islands (except Guam)
PLM	Palmyra Island
PLW	Republic of Palau (not considered US&P)
SMA	Samoa (American)
WAK	Wake Island

A2.1.3. Area Codes:

Code	Area
AFR	Africa
ANTR	Antarctica
ARCO	Arctic Ocean
CAM	Central America
CAP	Civil Air Patrol Region
CBN	Caribbean
ETR	Eastern Test Range
EUR	Europe
FE	Far East
GLM	Gulf of Mexico
GTLK	Great Lakes (collectively)
INDO	Indian Ocean
LAM	Latin America

LANT	Atlantic Ocean
LERI	Lake Erie
LHUR	Lake Huron
LMIC	Lake Michigan
LONT	Lake Ontario
LSUP	Lake Superior
MED	Mediterranean Sea
OCNA	Oceania
PAC	Pacific Ocean
SPCE	Space
WSMR	White Sands Missile Range
WTR	Western Test Range

A2.1.4. State Codes:

Code	State
AL	Alabama
AK	Alaska
AZ	Arizona
AR	Arkansas
CA	California
CO	Colorado
CT	Connecticut
DE	Delaware
DC	District of Columbia
FL	Florida
GA	Georgia
GUM	Guam
HI	Hawaii
ID	Idaho
IL	Illinois
IN	Indiana
IA	Iowa
KS	Kansas
KY	Kentucky
LA	Louisiana
MA	Massachusetts
MD	Maryland

ME	Maine
MI	Michigan
MN	Minnesota
MO	Missouri
MS	Mississippi
MT	Montana
NC	North Carolina
ND	North Dakota
NE	Nebraska
NH	New Hampshire
NJ	New Jersey
NM	New Mexico
NV	Nevada
NY	New York
OH	Ohio
OK	Oklahoma
OR	Oregon
PA	Pennsylvania
PR	Puerto Rico
RI	Rhode Island
SC	South Carolina
SD	South Dakota
TN	Tennessee
TX	Texas
UT	Utah
VA	Virginia
VI	Virgin Islands
VT	Vermont
WA	Washington
WI	Wisconsin
WV	West Virginia
WY	Wyoming

A2.1.5. Nongeographical Codes and Abbreviations:

Code	Description
ACFT	Aircraft
AFB	Air Force Base

ARA	Army Area
ARPT	Airport
CGD	Coast Guard District
CO	County
CP	Camp
CY	City
DI	District
DIV	Division
FT	Fort
GEOSTATIONARY	Geostationary Satellite
IAP	International Airport
IS	Island
LNB	Large Navigational Buoy
MT	Mont, Monte, Mount
MTN	Mountain
MAP	Municipal Airport
NONGEOSTATIONARY	Nongeostationary Satellite
PG	Proving Ground
PT	Point
ST	Saint

A2.2. Command Codes .

A2.2.1. Use the following codes to identify MAJCOMs, FOAs, DRUs, AFCs, etc., in SFAF 200-series items:

MAJCOM	***Code***
Air Combat Command	ACC
Air Force Materiel Command	AFMC
Air Force Space Command	SPACECMD
Air Mobility Command	AFAMC
Air Education and Training Command	AETC
Pacific Air Forces	PACAF
United States Air Forces in Europe	USAFE
Headquarters Air Force	HAF
FOA	
Air Force Civil Engineering Support Agency	AFCESA
Air Force Communications Agency	AFCA

Air Force Frequency Management Agency	AFFMA
Air Force Security Police Agency	AFSPA
Air Force Office of Special Investigations	AFOSI
Air Force Reserve	AFR
Air Intelligence Agency	AIA
Air National Guard	ANG

DRU

Air Force Academy	AFA
Air Force Operational Test and Evaluation Center	AFOTEC

AFC

Nellis	NAFC
Eastern	EAFC
Gulf	GAFC
Western	WAFC
White Sands Missile Range	WSMR
Alaska	AAFC
Kwajalein	KMR
Puerto Rico	AFCPR

A2.3. Services, Station Classes, and Stations (use the station class symbols in Table A2.1 for SFAF Item 113).

Table A2.1. Station Classes by Type of Service and Station:

SERVICE	STATION CLASS	STATION DESCRIPTION
1. Amateur	None	Amateur
2. Broadcasting	BC	Broadcasting (sound)
	BT	Broadcasting (television)
3. Broadcasting-Satellite	EB	Space (sound)
	EV	Space (television)
4. Earth Exploration-Satellite	EW	Space
	TW	Earth
Meteorological-Satellite	EM	Space
	TM	Earth
5. Fixed	FX	Fixed
	FXD	Telecommand Fixed
	FXE	Telemetering Fixed
	FXH	Hydrologic and Meteorological Aeronautical Fixed
	AX	Aeronautical Fixed
6. Fixed-Satellite	EC	Space
	TC	Earth
	VA	Land Earth
7. Inter-Satellite	ES	Space
8. Meteorological Aids	WXB	Radar Beacon Precipitation Gauge
	WXD	Meteorological Radar
	WXR	Radiosonde
	WXRG	Radiosonde ground
9. Mobile	FL	Land
	FLD	Telecommand Land
	FLE	Telemetering Land
	FLEA	Aeronautic Telemetering Land
	FLEB	Flight Telemetering Land
	FLEC	Surface Telemetering Land
	FLH	Hydrologic and Meteorological Land
	FLU	Aeronautical Utility Land
	MO	Mobile
	MOB	Radio Beacon Mobile
	MOD	Telecommand Mobile

	MOE	Telemetering Mobile
	MOEA	Aeronautical Telemetering Mobile
	MOEB	Flight Telemetering Mobile
	MOEC	Surface Telemetering Mobile
	MOH	Hydrologic and Meteorological Mobile
	MOP	Portable Mobile
	MOU	Aeronautical Utility Mobile
Aeronautical Mobile	FA	Aeronautical Mobile
	FAB	Aeronautical Broadcast
	FAC	Airdrome Control
	FAD	Telecommand Aeronautical
	FAT	Flight Test
	MA	Aircraft
	MAP	Portable Aircraft
Aeronautical Mobile (OR)	FG	Aeronautical
Aeronautical Mobile (R)	FD	Aeronautical
Aeronautical Multicom	None	Aeronautical Multicom Land
	None	Aeronautical Multicom Mobile
Land Mobile	FB	Base
	FBD	Telecommand Base
	ML	Land Mobile
	MLD	Telecommand Land Mobile
	MLP	Portable Land Mobile
Maritime Mobile	FC	Coast
	FCB	Marine Broadcast
	FCD	Telecommand Coast
	MS	Ship
	MSD	Telecommand Ship
	MSP	Portable Ship
	OD	Oceanographic Data
	OE	Oceanographic Data Interrogating
10. Mobile-Satellite	UA	Mobile Earth
	TE	EPIRB Mobile
	EI	Space
	VA	Land Earth

	EJ	Space
	TB	Earth
	TJ	Aircraft Earth
Land Mobile-Satellite	EU	Space
	TU	Land Mobile Earth
	TY	Base Earth
Maritime Mobile Satellite	EG	Space
	TG	Ship Earth
	TI	Coast Earth
11. Radio Astronomy	RA	Radio Astronomy
12. Radiodetermination	None	Radiodetermination
	RG	Radio Direction-Finding
Radiolocation	LR	Land
	MR	Mobile
	MRP	Portable
Radionavigation	NR	Mobile
	RLN	LORAN
	RN	Land Aeronautical
Radionavigation	RLA	Marker Beacon
	RLB	Radiobeacon
	RLC	Radar Beacon (RACON)
	RLG	Glide Path (Slope)
	RLL	Localizer
	RLO	Omnidirectional Range
	RLR	Radio Range
	RLS	Surveillance Radar
	RLTM	Land Test (Maintenance)
	RLTO	Land Test (Operational)
	ROA	Altimeter
Maritime Radionavigation	NL	Land Station
	RLC	Radar Beacon (RACON)
	RLM	Marine Radiobeacon
13. Radiodetermination-Satellite	EF	Space
	TF	Earth
	TL	Mobile Earth
Radionavigation Satellite	EN	Space
	TN	Fixed Earth

	UM	Mobile Earth
Aeronautical Radionaviga-tion-	EO	Space Satellite
	TO	Mobile Earth
	TZ	Earth
Maritime Radionavigation-	EQ	Space Satellite
	TQ	Mobile Earth
	TX	Earth
14. Space Operation	ET	Space
	TT	Earth
15. Space Research	EH	Space
	TH	Earth
16. Standard Frequency and Time Signal	SS	Standard Frequency and Time Signal
17. Standard Frequency and Space	EE	Time Signal-Satellite
18. No Specific Service	ED	Space Telecommand Space
	EK	Space Tracking Space
	ER	Space Telemetering Space
	SN	Sounder Network
	SP	Sounder Prediction
	TD	Space Telecommand Earth
	TK	Space Tracking Earth
	TR	Space Telemetering Earth
	XC	Experimental Contract Devel-opmental
	XD	Experimental Developmental
	XE	Experimental Export
	XM	Experimental Composite
	XR	Experimental Research
	XT	Experimental Testing

Table A2.2. Alphabetical List of Station Classes with Definitions. (NOTE: Where (RR) follows a definition, the definition appears in the ITU Radio Regulations. These symbols are extracted from the NTIA Manual. Other countries may not accept symbols and definitions not in the ITU Radio

Regulations.)

SYMBOL	DEFINITION
AX	Aeronautical Fixed Station: A station in the aeronautical fixed service. **(RR)**
BC	Broadcasting Station (sound): A station (sound) in the broadcasting service. **(RR)**
BT	Broadcasting Station (television): A station (television) in the broadcasting service. **(RR)**
EB	Broadcasting-Satellite Space Station (sound broadcasting): A space station (sound broadcasting) in the broadcasting satellite service. **(RR)**
EC	Fixed-Satellite Space Station: A space station in the fixed satellite service. **(RR)**
ECED	Space Telecommand Space Station in the fixed satellite service.
ECEK	Space Tracking Space Station in the fixed satellite service.
ECER	Space Telemetering Space Station in the fixed satellite service.
ED	Space Telecommand Space Station: A space station which receives emissions used for space telecommand. **(RR)**
EE	Standard Frequency-Satellite and Time Signal Satellite Space Station: A space station in the standard frequency and time signal satellite service. **(RR)**
EF	Radiodetermination-Satellite Space Station: A space station in the radiodetermination satellite service. **(RR)**
EFED	Space Telecommand Time Signal Satellite Space Station in the radiodetermination-satellite service.
EFEK	Space Tracking Space Station in the radiodetermination satellite service.
EFER	Space Telemetering Space Station in the radiodetermination satellite service.
EG	Maritime Mobile Satellite Space Station: A space station in the MM satellite service. **(RR)**
EGED	Space Telecommand Space Station in the MM satellite service.
EGEK	Space Tracking Space Station in the MM satellite service.
EGER	Space Telemetering Space Station in the MM satellite service.
EH	Space Research Space Station: A space station in the space research service. **(RR)**
EHED	Space Telecommand Space Station in the space research service.
EHEK	Space Tracking Space Station in the space research service.
EHER	Space Telemetering Space Station in the space research service.
EI	Mobile-Satellite Space Station: A space station in the mobile satellite service. **(RR)**
EJ	Aeronautical Mobile Satellite Space Station: A space station in the aeronautical mobile satellite service. **(RR)**
EJED	Space Telecommand Space Station in the aeronautical mobile satellite service.
EJEK	Space Tracking Space Station in the aeronautical mobile satellite service.
EJER	Space Telemetering Space Station in the aeronautical mobile satellite service.

EK	Space Tracking Space Station: A space station that transmits or receives and retransmits emissions used for space tracking. **(RR)**
EM	Meteorological-Satellite Space Station: A space station in the meteorological satellite service. (RR)
EMED	Space Telecommand Space Station in the meteorological satellite service.
EMEK	Space Tracking Space Station in the meteorological satellite service.
EMER	Space Telemetering Space Station in the meteorological-satellite service.
EN	Radionavigation-Satellite Space Station: A space station in the radionavigation-satellite service. (RR)
ENED	Space Telecommand Space Station in the radionavigation-satellite service.
ENEK	Space Tracking Space Station in the radionavigation-satellite service.
ENER	Space Telemetering Space Station in the radionavigation-satellite service.
EO	Aeronautical Radionavigation-Satellite Space Station: A space station in the aeronautical radionavigation-satellite service. (RR)
EOED	Space Telecommand Space Station in the aeronautical radionavigation-satellite service.
EOEK	Space Tracking Space Station in the aeronautical radionavigation-satellite service.
EOER	Space Telemetering Space Station in the aeronautical radionavigation-satellite service.
EQ	Maritime Radionavigation-Satellite Space Station: A space station in the maritime radionavigation-satellite service. (RR)
EQED	Space Telecommand Space Station in the maritime radionavigation-satellite service.
EQEK	Space Tracking Space Station in the maritime radionavigation-satellite service.
EQER	Space Telemetering Space Station in the maritime radionavigation-satellite service.
ER	Space Telemetering Space Station: A space station the emissions of which are used for space telemetering. (RR)
ES	Inter-satellite Space Station: A space station used in the inter-satellite service. (RR)
ESED	Space Telecommand Space Station in the inter-satellite service.
ESEK	Space Tracking Space Station in the inter-satellite service.
ESER	Space Telemetering Space Station in the inter-satellite service.
ET	Space Operation Space Station: A space station in the space operation service.
ETED	Space Telecommand Space Station in the space operation service.
ETEK	Space Tracking Space Station in the space operation service.
ETER	Space Telemetering Space Station in the space operation service.
EU	Land Mobile-Satellite Space Station: A space station in the land mobile-satellite service. (RR)

EUED	Space Telecommand Space Station in the land mobile-satellite service.
EUEK	Space Tracking Space Station in the land mobile-satellite service.
EUER	Space Telemetering Space Station in the land mobile-satellite service.
EV	Broadcasting-Satellite Space Station (television): A space station (television) in the broadcasting-satellite service. (RR)
EW	Earth Exploration-Satellite Space Station: A space station in the Earth exploration-satellite service. (RR)
EWED	Space Telecommand Space Station in the Earth exploration-satellite service.
EWEK	Space Tracking Space Station in the Earth exploration-satellite service.
EWER	Space Telemetering Space Station in the Earth exploration-satellite service.
EX	Experimental Station: A station using radio waves in experiments with a view to development of science or technique (NOTE: EX is not used on applications.). (RR)
FA	Aeronautical Station: A land station in the aeronautical mobile service. In certain instances, a ship or a platform may serve as an aeronautical station. (RR)
FAB	Aeronautical Broadcast Station: An aeronautical station that makes scheduled broadcasts of meteorological information and notices to airmen. (NOTE: In certain instances, a ship may serve as an aeronautical broadcast station.)
FAC	Airdrome Control Station: An aeronautical station providing communication between an airdrome control tower and aircraft.
FAD	Telecommand Aeronautical Station: A land station in the aeronautical mobile service the emissions of which are used for terrestrial telecommand.
FAT	Flight Test Station: An aeronautical station used for the transmission of essential communications in connection with the testing of aircraft.
FB	Base Station: A land station in the land mobile service. (RR)
FBD	Telecommand Base Station: A land station in the land mobile service where the emissions are used for terrestrial telecommand.
FC	Coast Station: A land station in the MM service. (RR)
FCB	Marine Broadcast Station: A coast station that makes scheduled time, meteorological, and hydrographic information broadcasts.
FCD	Telecommand Coast Station: A land station in the MM service where the emissions are used for terrestrial telecommand.
FD	Aeronautical Station (R): An aeronautical station in the aeronautical mobile (R) service using the exclusive (R) bands. (RR)
FG	Aeronautical Station (OR): An aeronautical station in the aeronautical mobile (OR) service using the exclusive (OR) bands. (RR)
FL	Land Station: A station in the mobile service not intended for use while in motion. (RR)
FLD	Telecommand Land Station: A land station in the mobile service where the emissions are used for terrestrial telecommand.

FLE	Telemetering Land Station: A land station where the emissions are used for telemetering.
FLEA	Aeronautical Telemetering Land Station: A telemetering land station used in the light testing of manned or unmanned aircraft, missiles, or their major components.
FLEB	Flight Telemetering Land Station: A telemetering land station where the emissions are used for telemetering to a balloon; to a booster or rocket, excluding a booster or rocket in orbit about the Earth or in deep space; or to an aircraft, excluding a station used in the flight testing of an aircraft.
FLEC	Surface Telemetering Land Station. A telemetering land station where the emissions are received on the surface of the Earth.
FLH	Hydrologic and Meteorological Land Station. A land station the where the emissions are used for the automatic transmission of either hydrologic or meteorological data, or both.
FLU	Aeronautical Utility Land Station: A land station located at airdrome control towers used for controlling ground vehicles and aircraft on the ground at airdromes.
FX	Fixed Station: A station in the fixed service. (RR)
FXD	Telecommand Fixed Station: A fixed station in the fixed service where the emissions are used for terrestrial telecommand.
FXE	Telemetering Fixed Station: A fixed station where the emissions are used for telemetering.
FXH	Hydrologic and Meteorological Fixed Station: A fixed station where the emissions are used for the automatic transmission of either hydrologic or meteorological data, or both.
LR	Radiolocation Land Station: A station in the radiolocation service not intended for use while in motion. (RR)
MA	Aircraft Station: A mobile station in the aeronautical mobile service other than a survival craft station, located on board an aircraft. (RR)
MAD	Telecommand Aircraft Station: A mobile station in the aeronautical mobile service where the emissions are used for terrestrial telecommand.
MAP	Portable Aircraft Station: A portable station operating in the aeronautical mobile service.
ME	Space Station: A station located on an object which is beyond, is intended to go beyond, or has been beyond the major portion of the Earth's atmosphere. (NOTE: ME is not used on applications.) (RR)
ML	Land Mobile Station: A mobile station in the land mobile service capable of surface movement within the geographical limits of a country or continent. (RR)
MLD	Telecommand Land Mobile Station: A mobile station in the land mobile service where the emissions are used for terrestrial telecommand.
MLP	Portable Land Mobile Station: A portable station operating in the land mobile service.

MO	Mobile Station: A station in the mobile service intended for use while in motion or during halts at unspecified points. (RR)
MOB	Radio Beacon Mobile Station: A mobile station where the emissions are used to determine its location.
MOD	Telecommand Mobile Station: A mobile station in the mobile service where the emissions are used for terrestrial telecommand.
MOE	Telemetering Mobile Station: A mobile station where the emissions are used for telemetering.
MOEA	Aeronautical Telemetering Mobile Station: A telemetering mobile station used for transmitting data directly related to the airborne testing of the vehicle (or major components) on which the station is installed.
MOEB	Flight Telemetering Mobile Station: A telemetering mobile station used for transmitting data from an airborne vehicle, excluding data related to airborne testing of the vehicle itself, or their major components.
MOEC	Surface Telemetering Mobile Station: A telemetering mobile station located on the surface of the Earth where the emissions are intended for receipt on the surface of the Earth.
MOH	Hydrologic and Meteorological Mobile Station: A mobile station where the emissions are used for the automatic transmission of either hydrologic or meteorological data, or both.
MOP	Portable Mobile Station: A portable station operating in the mobile service.
MOU	Aeronautical Utility Mobile Station: A mobile station used for communications at airdromes with the aeronautical utility land station, the airdrome control station, the FAA FSSs, ground vehicles, and aircraft on the ground. (NOTE: All transmissions are subject to the control of the airdrome control station and will be discontinued immediately when so requested by the airdrome control operators.)
MR	Radiolocation Mobile Station: A station in the radiolocation service intended for use while in motion or during halts at unspecified points. (RR)
MRP	Portable Radiolocation Station: A portable station operating in the radiolocation service.
MS	Ship Station: A mobile station in the MM service located on board a vessel that is not permanently moored, other than a survival craft station. (RR)
MSD	Telecommand Ship Station: A mobile station in the MM service where the emissions are used for terrestrial telecommand.
MSP	Portable Ship Station: A portable station operating in the MM service.
NL	Maritime Radionavigation Land Station: A land station in the maritime radionavigation service not intended for use while in motion.
NR	Radionavigation Mobile Station: A radionavigation mobile station in the radionavigation service. (NOTE: Formerly RO station class.) (RR)NOTE:
OD	Oceanographic Data Station: A station in the MM service located on a ship, buoy, or other sensor platform that uses the emissions for the transmission of oceanographic data. (RR)

OE	Oceanographic Data Interrogating Station: A station in the MM service that uses the emissions to initiate, modify, or terminate functions of equipment directly associated with an oceanographic data station, including the station itself. (RR)
RA	Radio Astronomy Station: A station in the radio astronomy service. (NOTE: This is always a receiving station.) (RR)
RG	Radio Direction-Finding Station: A radio determination station using radio direction-finding. (RR)
RLA	Aeronautical Marker Beacon Station: A radionavigation land station in the aeronautical radionavigation service which employs a marker beacon.
RLB	Aeronautical Radiobeacon Station: A radiobeacon station in the aeronautical radionavigation service intended for the benefit of aircraft.
RLC	Radar Beacon (RACON) Station: A station that employs a RACON.
RLG	Glide Path (Slope) Station: A radionavigation land station in the aeronautical radionavigation service that employs the instrument landing system glide path.
RLL	Localizer Station. A radionavigation land station in the aeronautical radionavigation service that employs an instrument landing system localizer.
RLM	Marine Radiobeacon Station: A radiobeacon station in the maritime radionavigation service intended for the benefit of ships.
RLN	LORAN Station: A long distance radionavigation land station transmitting synchronized pulses. Hyperbolic lines of position are determined by the measurement of the difference in the time of arrival of these pulses.
RLO	Omnidirectional Range Station: A radionavigation land station in the aeronautical radionavigation service providing direct indication of the bearing (omnibearing) of that station from an aircraft.
RLR	Radio Range Station. A radionavigation land station in the aeronautical radionavigation service providing radial equisignal zones. (In certain instances a ship can provide a platform for a radio range station.)
RLS	Surveillance Radar Station. A radionavigation land station in the aeronautical radionavigation service employing radar to display the presence of aircraft within its range. (In certain instances, a ship can provide a platform for a surveillance radar station.)
RLTM	Radionavigation Land Test Station (Maintenance Test Facility): A land station in the aeronautical radionavigation service that is used as a radionavigation calibration station for the transmission of essential information in connection with the testing and calibration of aircraft NAVIDs, receiving equipment and interrogators at predetermined surface locations. The primary purpose of this facility is to permit maintenance testing by aircraft radio service personnel.

RLTO	Radionavigation Land Test Station (Operational Test Facility). A radionavigation land station in the aeronautical radionavigation service used as a radionavigation calibration station for the transmission of essential information in connection with the testing and calibration of aircraft NAVAIDs, receiving equipment and interrogators at predetermined surface locations. The primary purpose of this facility is to permit the pilot to check a radionavigation system aboard the aircraft before takeoff.
RN	Radionavigation Land Station: A radionavigation land station in the radionavigation service. (**NOTE:** Formerly RL station class.) **(RR)**
ROA	Altimeter Station: A radionavigation mobile station in the aeronautical radionavigation service that employs a radio altimeter.
SN	Sounder Network Station: A station equipped with an ionosphere sounder used for the real-time selection of frequencies for operational communication circuits.
SP	Sounder Prediction Station: A station equipped with an ionosphere sounder for real-time monitoring of upper atmosphere phenomena or to obtain data for the prediction of propagation conditions.
SS	Standard Frequency and Time Signal Station: A station in the standard frequency and time signal service. **(RR)**
TB	Aeronautical Mobile-Satellite Earth Station: An aeronautical Earth station in the aeronautical mobile-satellite service. **(RR)**
TBTD	Space Telecommand Earth Station (Fixed): An aeronautical Earth station in the aeronautical mobile-satellite service.
TBTK	Space Tracking Earth Station (Fixed): An aeronautical Earth station in the aeronautical mobile-satellite service.
TBTR	Space Telemetering Earth Station (Fixed): An aeronautical Earth station in the aeronautical mobile-satellite service.
TC	Fixed Satellite Earth Station: An Earth station in the fixed satellite service.
TCTD	Space Telecommand Earth Station: An Earth station in the fixed-satellite service.
TCTK	Space Tracking Earth Station: An Earth station in the fixed satellite service.
TCTR	Space Telemetering Earth Station: An Earth station in the fixed satellite service.
TD	Space Telecommand Earth Station: An Earth station where the emissions are used for space telecommand. **(RR)**
TE	Satellite Emergency Position-Indicating Radio Beacon (EPIRB) Station: A satellite EPIRB in the mobile satellite service. **(RR)**
TETD	Space Telecommand Transmitting Earth Station: A satellite for an EPIRB in a mobile satellite service.
TETK	Space Tracking Transmitting Earth Station: A satellite for an EPIRB in a mobile-satellite service.
TETR	Space Telemetering Transmitting Earth Station: A satellite for an EPIRB in a mobile-satellite service.
TF	Radiodetermination Satellite Earth Station: A fixed Earth station in the radiodetermination satellite service. **(RR)**

TFTD	Space Telecommand Earth Station (Fixed): A fixed Earth station in the radiodetermination-satellite service.
TFTK	Space Tracking Earth Station (Fixed): A fixed Earth station in the radiodetermination satellite service.
TFTR	Space Telemetering Earth Station (Fixed): A fixed Earth station in the radiodetermination satellite service.
TG	Maritime Mobile Satellite Mobile Ship Station: A ship Earth station in the MM satellite service. (RR)
TGTD	Space Telecommand Earth Station (Mobile): A ship Earth station in the MM satellite service.
TGTK	Space Tracking Earth Station (Mobile): A ship Earth station in the MM satellite service.
TGTR	Space Telemetering Earth Station (Mobile): A ship Earth station in the MM satellite service.
TH	Space Research Earth Station: An Earth station in the space research service. **(RR)**
THTD	Space Telecommand Earth Station: An Earth station in the space research service.
THTK	Space Tracking Earth Station: An Earth station in the space research service.
THTR	Space Telemetering Earth Station: An Earth station in the space research service.
TI	Maritime Mobile Satellite Coast Earth Station: A coast Earth station in the MM satellite service at a specified fixed point. **(RR)**
TITD	Space Telecommand Earth Station (Fixed): A coast Earth station in the MM satellite service.
TITK	Space Tracking Earth Station (Fixed): A coast Earth station in the MM satellite service.
TITR	Space Telemetering Earth Station (Fixed): A coast Earth station in the MM satellite service.
TJ	Aeronautical Mobile Satellite Aircraft Earth Station: An aircraft Earth station in the aeronautical mobile satellite service. **(RR)**
TJTD	Space Telecommand Earth Station (Mobile): An aircraft Earth station in the aeronautical mobile-satellite service.
TJTK	Space Tracking Earth Station (Mobile): An aircraft Earth station in the aeronautical mobile-satellite service.
TJTR	Space Telemetering Earth Station (Mobile): An aircraft Earth station in the aeronautical mobile satellite service.
TK	Space Tracking Earth Station: An Earth station that transmits or receives emissions used for space tracking. **(RR)**
TL	Radiodetermination Satellite Mobile Earth Station: A mobile Earth station in the radiodetermination satellite service. **(RR)**

TLTD	Space Telecommand Earth Station (Mobile): A mobile Earth station in the radiodetermination satellite service.
TLTK	Space Tracking Earth Station (Mobile): A mobile Earth station in the radiodetermination satellite service.
TLTR	Space Telemetering Earth Station (Mobile): A mobile Earth station in the radiodetermination satellite service.
TM	Meteorological-Satellite Earth Station: An Earth station in the meteorological satellite service. **(RR)**
TMTD	Space Telecommand Earth Station: An Earth station in the meteorological satellite service.
TMTK	Space Tracking Earth Station: An Earth station in the meteorological satellite service.
TMTR	Space Telemetering Earth Station: An Earth station in the meteorological satellite service.
TN	Radionavigation Satellite Fixed Earth Station: A fixed Earth station in the radionavigation satellite service. **(RR)**
TNTD	Space Telecommand Earth Station: A fixed Earth station in the radionavigation satellite service.
TNTK	Space Tracking Earth Station: A fixed Earth station in the radionavigation satellite service.
TNTR	Space Telemetering Earth Station: A fixed Earth station in the radionavigation satellite service.
TO	Aeronautical Radionavigation-Satellite Mobile Earth Station: A mobile Earth station in the aeronautical radionavigation satellite service. **(RR)**
TOTD	Space Telecommand Earth Station (Mobile): A mobile Earth station in the aeronautical radionavigation-satellite service.
TOTK	Space Tracking Earth Station (Mobile): A mobile Earth station in the aeronautical radionavigation satellite service.
TOTR	Space Telemetering Earth Station (Mobile): A mobile Earth station in the aeronautical radionavigation-satellite service.
TP	Earth Station (Receiving): An Earth station used for receiving. **(NOTE:** TP is not used on applications.) **(RR)**
TQ	Maritime Radionavigation Satellite Mobile Earth Station: A mobile Earth station in the maritime radionavigation satellite service. **(RR)**
TQTD	Space Telecommand Earth Station (Mobile): A mobile Earth station in the maritime radionavigation-satellite service.
TQTK	Space Tracking Earth Station (Mobile): A mobile Earth station in the maritime radionavigation satellite service.
TQTR	Space Telemetering Earth Station (Mobile): A mobile Earth station in the maritime radionavigation satellite service.

TR	Space Telemetering Earth Station: An Earth station that receives emissions used for space telemetering. **(RR)**
TT	Space Operation Earth Station: An Earth station in the space operation service. **(RR)**
TTTD	Space Telecommand Earth Station: An Earth station in the space operation service.
TTTK	Space Tracking Earth Station: An Earth station in the space operation service.
TTTR	Space Telemetering Earth Station: An Earth station in the space operation service.
TU	Land Mobile-Satellite Land Mobile Earth Station: A land mobile Earth station in the land mobile satellite service. (RR)
TUTD	Space Telecommand Earth Station (Mobile): A land mobile Earth station in the land mobile satellite service.
TUTK	Space Tracking Earth Station (Mobile): A land mobile Earth station in the land mobile satellite service.
TUTR	Space Telemetering Earth Station (Mobile): A land mobile Earth station in the land mobile satellite service.
TW	Earth Exploration-Satellite Earth Station: An Earth station in the Earth exploration-satellite service. **(RR)**
TWTD	Space Telecommand Earth Station: An Earth station in the Earth exploration-satellite service.
TWTK	Space Tracking Earth Station: An Earth station in the Earth exploration satellite service.
TWTR	Space Telemetering Earth Station: An Earth station in the Earth exploration satellite service.
TX	Maritime Radionavigation-Satellite Earth Station: A fixed Earth station in the maritime radionavigation satellite service. **(RR)**
TXTD	Space Telecommand Earth Station (Fixed): A fixed Earth station in the maritime radionavigation satellite service.
TXTK	Space Tracking Earth Station (Fixed). A fixed Earth station in the maritime radionavigation satellite service.
TXTR	Space Telemetering Earth Station (Fixed): A fixed Earth station in the maritime radionavigation satellite service.
TY	Land Mobile-Satellite Base Earth Station: A base Earth station in the land mobile-satellite service. **(RR)**
TYTD	Space Telecommand Earth Station (Fixed): A fixed Earth station in the land mobile-satellite service.
TYTK	Space Tracking Earth Station (Fixed): A fixed Earth station in the land mobile satellite service.
TYTR	Space Telemetering Earth Station (Fixed): A fixed Earth station in the land mobile-satellite service.

TZ	Aeronautical Radionavigation-Satellite Earth Station: A fixed Earth station in the aeronautical radionavigation satellite service. **(RR)**
TZTD	Space Telecommand Earth Station (Fixed): A fixed Earth station in the aeronautical radionavigation satellite service.
TZTK	Space Tracking Earth Station (Fixed): A fixed Earth station in the aeronautical radionavigation satellite service.
TZTR	Space Telemetering Earth Station (Fixed): A fixed Earth station in the aeronautical radionavigation satellite service.
UA	Mobile-Satellite Service Mobile Earth Station: A mobile Earth station in the mobile satellite service. **(RR)**
UM	Radionavigation-Satellite Mobile Earth Station: A mobile Earth station in the radionavigation satellite service. **(RR)**
VA	Land Earth Station: An Earth station in the fixed-satellite service (or in the mobile-satellite service providing a feeder link for that service). (RR)
WXB	Radar Beacon Precipitation Gauge Station: A transponder station in the meteorological aids service where the emissions are used for telemetering.
WXD	Meteorological Radar Station: A station in the meteorological aids service using radar.
WXR	Radiosonde Station: A station in the meteorological aids service using a radiosonde.
WXRG	Radiosonde Ground Station: A station in the meteorological aids service using a ground station associated with a radiosonde.
XC	Experimental Contract Developmental Station: An experimental station used for evaluating or testing, under government contract, electronics equipment or systems in the design or development stage.
XD	Experimental Developmental Station: An experimental station used for evaluating or testing electronics equipment or systems in the design or development stage.
XE	Experimental Export Station: An experimental station intended for export and used for evaluating or testing electronics equipment or systems in the design or development stage.
XM	Experimental Composite Station: An experimental station used in experimental complex operations not readily specified or used in an operation that is a composite of two or more of the established experimental categories.
XR	Experimental Research Station: An experimental station used in basic studies concerning scientific investigation looking toward the improvement of the art of radiocommunications.
XT	Experimental Testing Station: An experimental station used for evaluating or testing electronics equipment or systems, including developing site selection and transmission path surveys for operational use.

A2.4. Emission Designators.

A2.4.1. This section contains emission designators extracted from the *NTIA Manual* for use in SFAF Item 114.

A2.4.2. Emission Designator Structure. The emission designator consists of the bandwidth and emission classification symbols.

A2.4.2.1. An emission designator is used for each type of transmission. For example, a 6K00A3E (analog, nonsecure voice) emission designator does not include authority for any other type of transmission such as continuous wave (CW) or tone-modulated telegraphy.

A2.4.2.1.1. Necessary bandwidth: Doppler shift is not included in the frequency tolerance or necessary bandwidth; however, at the option of the applicant, you may show Doppler shift as an extra item of information in the supplementary details field.

A2.4.2.1.2. Emission classification symbols:

A2.4.2.1.2.1. First symbol--indicates the type of modulation of the main carrier.

A2.4.2.1.2.2. Second symbol--indicates the nature of signals modulating the main carrier.

A2.4.2.1.2.3. Third symbol--indicates the type of information to transmit.

A2.4.2.1.2.4. Fourth symbol--indicates the details of the signal (optional but recommended when applicable).

A2.4.2.1.2.5. Fifth symbol--indicates the nature of multiplexing (optional but recommended when applicable).

A2.4.2.2. Enter the emission designator according to the following rules:

A2.4.2.2.1. Necessary bandwidth. This portion of the emission designator includes a maximum of five numerals and one letter. The letter occupies the position of the decimal point and represents the unit of bandwidth as follows:

A2.4.2.2.1.1. H for hertz

A2.4.2.2.1.2. K for kilohertz

A2.4.2.2.1.3. M for megahertz

A2.4.2.2.1.4. G for gigahertz

A2.4.2.2.2. You may express fractional bandwidths to a maximum of two decimal places following the letter. The first character of the necessary bandwidth is always greater than zero unless the necessary bandwidth is less than 1 Hz. In that case, the first character is the letter H. Express the necessary bandwidths according to the following:

A2.4.2.2.2.1. Between .01 and 999.99 Hz, use the letter H in place of the decimal. For example, 15H is 15 Hz of bandwidth and 15H01 is 15.01 Hz of bandwidth.

A2.4.2.2.2.2. Between 1.00 and 999.99 kHz, use the letter K in place of the decimal. For example, 2K is 2 kHz of bandwidth and 2K85 is 2.85 kHz of bandwidth.

A2.4.2.2.2.3. Between 1.00 and 999.99 MHz use the letter M in place of the decimal. For example, 6M is 6 MHz of bandwidth and 6M25 is 6.25 MHz of bandwidth.

A2.4.2.2.2.4. Between 1.00 and 999.99 GHz use the letter G in lieu of the decimal. For example, 10G is 10 GHz of bandwidth and 10G05 is 10.05 GHz of bandwidth. **NOTE:** Internationally, the ITU regulations specify a maximum of three numerals with one letter occupying the decimal position. For example, 100K00A1A expressed according to NTIA rules is expressed as 100KA1A according to the ITU Radio Regulations. Also, 54K00F3E is expressed as 54K0F3E. NTIA format is always entered in the SFAF; however, some nations may require the ITU format for coordination of frequencies to be used in their countries.

A2.4.2.2.3. Emission classification symbols. Enter the basic emission designator of three symbols. You may also use two optional symbols:

A2.4.2.2.3.1. First symbol--designates the type of modulation of the main carrier:

SYMBOL	**TYPE OF EMISSION**
UNMODULATED:	
N	Emission of an unmodulated carrier
AMPLITUDE-MODULATED (emission in which the main carrier is amplitude-modulated [includes cases where subcarriers are angle-modulated])	
A	Double-sideband
B	Independent sidebands
C	Vestigial sideband
H	Single-sideband, full carrier
J	Single-sideband, suppressed carrier
R	Single-sideband, reduced or variable level carrier
ANGLE-MODULATED (emission in which the main carrier is angle-modulated)*:*	
F	Frequency modulation
G	Phase modulation
AMPLITUDE-MODULATED AND ANGLE-MODULATED:	
D	Emission in which the main carrier is amplitude-modulated and angle-modulated either simultaneously or in a pre-established sequence
PULSE	

P	Sequence of unmodulated pulses A sequence of pulses
K	Modulated in amplitude
L	Modulated in width or duration
M	Modulated in position or phase
Q	Carrier is angle-modulated during the period of the pulse
V	A combination of the foregoing or produced by other means

COMBINATION:

W	Cases, not covered above, in which an emission consists of the main carrier modulated, either simultaneously or in a combination of two or more of the following modes: amplitude, angle pulse
X	Cases not otherwise covered (see SFAF Item 801 for complete explanation)

A2.4.2.2.3.2. Second symbol--designates the nature of signals modulating the main carrier:

SYMBOL	**TYPE OF EMISSION**
0	No modulating signal
1	A single *channel containing quantized or digital signals without the use of a modulating subcarrier (excludes time-division multiplex)
2	A single *channel containing a quantized or digital signal with the use of a modulating subcarrier
3	A single *channel containing an analog signal
7	Two or more *channels containing quantized or digital signals
8	Two or more *channels containing analog signals
9	A composite system with one or more *channels containing quantized or digital signals, together with one or more channels containing analog signals
X	Cases not otherwise covered (see SFAF Item 801 for complete explanation)

(*) In this context, “channel” refers to the RF channel

A2.4.2.2.3.3. Third symbol--designates the type of information transmitted. (In this context the word "information" does not include information of a constant, unvarying nature such as provided by standard frequency emissions, continuous-wave and pulse radars, and so forth.)

SYMBOL	TYPE OF EMISSION
N	No information transmitted
A	Telegraphy-for aural reception
B	Telegraphy-for-automatic reception
C	Facsimile
D	Data transmission, telemetry, telecommand(NOTE: the symbol D indicates that data, telemetry, or telecommand information is transmitted individually or, that any combination of the three are transmitted simultaneously. If any combination is transmitted simultaneously, you must use one of the multi-channel symbols 7, 8, or 9, for the second symbol.)
E	Telephony (including sound broadcasting)
F	Television (video)
W	Combination of above. (Use only for multichannel systems having the capability of transmitting all information simultaneously)
X	Cases not otherwise covered (see SFAF Item 801 for complete explanation)

A2.4.2.2.3.4. Fourth symbol--designates the details of signal:

SYMBOL	TYPE OF EMISSION
A	Two-condition code with elements of differing numbers and/or durations
B	Two-condition code with elements of the same number and duration without error-correction
C	Two-condition code with elements of the same number and duration with error-correction
D	Four-condition code in which each condition represents a signal element (of one or more bits)
E	Multi-condition code in which each condition represents a signal element (of one or more bits)
F	Multi-condition code in which each condition or combination of conditions represents a character
G	Sound of broadcasting quality (monophonic)
H	Sound of broadcasting quality (stereophonic or quadraphonic)
J	Sound of commercial quality (excluding categories defined for symbols K and L below)
K	Sound of commercial quality with the use of frequency inversion or band-splitting

L	Sound of commercial quality with separate frequency-modulated signals to control the level of demodulated signal
M	Monochrome
N	Color
W	Combination of above
X	Cases not otherwise covered (see SFAF Item 801 for complete explanation).

A2.4.2.2.3.5. Fifth symbol--designates the nature of multiplexing:

SYMBOL	TYPE OF EMISSION
N	None
C	Code-division multiplex (includes bandwidth expansion techniques)
F	Frequency-division multiplex
T	Time-division multiplex
W	Combination of frequency-division multiplex and time-division multiplex
X	Other types of multiplexing

A2.5. Other Record Identifiers .

A2.5.1. User Net/Code (use these codes in SFAF Item 208):

CODE	DEFINITION
A2ACOM	Air/Air Communications
A2GCOM	Air/Ground Communications
ACMI	Aircraft Maneuvering Instrumentation
AFSAT	Air Force Satellite Communications
AGADV	Air Ground Advisory
ALARM	All Alarm Systems (except fire)
AMAINT	Avionics Maintenance
ASR	Airport Surveillance Radar
ATIS	Air Transportation Information System
AWACS	Airborne Warning and Control System
BASOPS	Base Operations
BBONE	Backbone
BEACON	Radio Beacons
CAP	Civil Air Patrol
CCNET	Commanders LMR Net
CENET	Civil Engineers LMR Net

CMDPST	All Command Post C2
COMSAT	Commercial Satellite
COB	Colocated Operating Base
CONNET	Contingency Net
COTHEN	Project Cothen
DEPCTL	Departure Control
DMSP	Defense Meteorological Satellite Program
DP	Disaster Preparedness
DRONE	Drone Command/Destruct
DSCS	Defense Satellite Communications System
DSP	Defense Surveillance Program
EOD	Explosive Ordinance Disposal
FAISAT	Small Satellite Thermal Technologies Experiment
FALARM	Fire Alarm
FCRASH	Fire Crash
FLTSAT	Fleet Satellite Communications
GLOALE	Worldwide HF A/G/A Voice/ALE Net
GLOBAL	Worldwide HF A/G/A Voice Net
GLODIS	Worldwide HF A/G/A Discrete Net
GLS	Glideslope
GNDCTL	Ground Control
GPS	Global Positioning System
HAARP	HF Alaska Project
HAVEQ	Have Quick
HAVNAP	AGM-142 Missile System
HFRDR	Height Finder Radar
ICBM	Intercontinental Ballistic Missile
IFF	Identify, Friend or Foe
ILS	Instrument Landing System
INVEN	Inventory or Inventory Control
JSS	Joint Surveillance System
JSTARS	Joint Surveillance Target Attack Radar System
JTIDS	Joint Tactical Information Distribution System
LAN	Local Area Network
LAWNET	Security Police/Law Enforcement LMR Net
LEO	Low Earth Orbiting Vehicle
LOCLZR	Localizer
LRR	Long Range Radar

MARS	Military Affiliate Radio Service
MDL	Microwave Data Link
MED	Medical
MILSTR	MILSTAR Satellite
MLS	Microwave Landing System
MMLS	Mobile Microwave Landing System
MNET	Maintenance LMR Net
MOB	Mobility
MPOOL	Motor Pool LMR Net
MYSTAR	Mystic Star
NAOC	Worldwide Airborne Command Post/National Emergency Airborne Command Post
NASA	National Air and Space Administration Support
NEXRAD	Next Generation Radar
NORAD	Northern Air Defense
OSI	Office of Special Investigation
OTHB	Over-The-Horizon Radar
PACCS	Post Attack Command and Control
PAGING	Paging System
PAR	Precision Approach Radar
PMSV	Pilot-To-Metro Forecaster
POLNET	Fuels LMR Net
PTD	Pilot-To-Dispatcher
RAPCON	Radar Approach Control
RDTE	Research, Development, Test, and Evaluation Support (Operational Station Class)
RDTEX	RDTE (Experimental)
RECON	Reconnaissance
RESCUE	Air/Sea Rescue
RNGCTL	Range Control
SAR	Search and Rescue
SHARES	Shared Resources
SITFA	HF SITFA Network (Spanish)
SOF	Supervisor of Flying
SOUND	Sounders (Station Class XT, SN, SP)
SPEED	Speed Control Radar
SQOPS	Squadron Operations
STRC	Strategic Range Complex

SURVEY	Surveillance (Security)
TACAN	Tactical Air Navigation
TACTNG	Tactical and Training In Combination
TARS	Tethered Aerostat Radar System
TELEM	Telemetry
TIS	Travelers Information Service
TOS	Television Ordnance Scoring
TRAIN	Non-Tactical Training (Excludes Air Traffic Control)
TRUNK	LMR Trunking Systems
TSTRNG	Test Range
UATC	UHF Air Traffic Control
UATCT	UHF ATC Training
UII	Underbrush II
VATC	VHF ATC
VATCT	VHF ATC Training
VHFDL	VHF Data Link
VOR	VHF Omni Range
VORTAC	VHF Omni Range Plus TAC
WHCA	White House Communications Agency Support
WMIKE	Wireless Microphones
WPR	Wind Profiler
WX	Weather

A2.5.2. Action Officer Codes (use these codes in SFAF Item 701):

ACTION OFFICER	SUBJECTIVE AREA
T04	30-88, 138-150.8, and 220-222 MHz
T05	118-138 and 225-400 MHz
T06	Radar (All Bands except JTIDS)
T07	NAVAIDS (All Bands except 1030/1090 MHz)
T08	Strategic Target Range Complex (STRC)
T09	Temporary (Exercise, electronic countermeasures [ECM], HF DCS Entry)
T10	Telemetry/ACMI
T11	Temporary, (Exercise, ECM, HF DCS Entry)
T12	Satellite (Non-Defense Satellite Communication System [DSCS])
T13	162-174, 406-420, 932-944, and 1350-1400 MHz
T14	JTIDS (All Temporary and Permanent Actions)

T16	Satellite (DSCS)
T17	Troposcatter, Microwave
T18	VLF *(very low frequency),* LF, and MF
T19	HF Maritime Mobile
T20	HF Fixed/Mobile
T21	HF Aeronautical Mobile (OR)

NOTE: Use the appropriate subject area for experimental (XT) frequency actions. For example, use T06 for an experimental radar.

A2.5.3. System Identifiers (use these identifiers in SFAF Item 705):

A2.5.3.1. ADMINISTRATIVE: Used for administrative and/or operational management of personnel or material.

ADMINISTRATIVE, BASE OPERATIONS

ADMINISTRATIVE, CEREMONIAL

ADMINISTRATIVE, INTEL

ADMINISTRATIVE, INVENTORY CONTROL

ADMINISTRATIVE, LOGISTICS

ADMINISTRATIVE, PILOT TO DISPATCH

ADMINISTRATIVE, SAFETY

ADMINISTRATIVE, SUPPLY

ADMINISTRATIVE, WAREHOUSE

ADMINISTRATIVE, WAREHOUSE RETRIEVAL

A2.5.3.2. AIR TRAFFIC CONTROL: Used for ground/air/ground voice communications dedicated to controlling movement of aircraft.

AIR TRAFFIC CONTROL, APPROACH

AIR TRAFFIC CONTROL, ATIS

AIR TRAFFIC CONTROL, DBRITE

AIR TRAFFIC CONTROL, DEPARTURE

AIR TRAFFIC CONTROL, ENROUTE

AIR TRAFFIC CONTROL, GROUND

AIR TRAFFIC CONTROL, LOCAL

A2.5.3.3. BACKBONE: Used for multiple-function, point-to-point communications where landline systems are not available.

BACKBONE, AFSAT

BACKBONE, DCS

BACKBONE, DSCS

BACKBONE, DSP

BACKBONE, MILSTAR

A2.5.3.4. COMMANDER: Used for commanders at other than top executive echelons to directly command and control operations.

COMMANDER, (Enter net name)

COMMANDER, AIR DEFENSE

COMMANDER, AWACS

COMMANDER, C2

COMMANDER, GLOBAL

COMMANDER, GWEN

COMMANDER, HICOM

COMMANDER, LINK11

COMMANDER, MISSION RADIO

COMMANDER, REGENCY

COMMANDER, SAR

COMMANDER, SQUADRON COMMON

A2.5.3.5. CONSTRUCTION: Used for construction activities.

CONSTRUCTION, CIVIL WORKS

CONSTRUCTION, INSPECTION

CONSTRUCTION, MAINTENANCE

CONSTRUCTION, PRIME BEEF

A2.5.3.6. CONTINGENCY: Used only for unusual situations such as civil disturbances, communications outages, and natural disasters.

CONTINGENCY, DSCS

CONTINGENCY, DISASTER PREPAREDNESS

CONTINGENCY, EOC

CONTINGENCY, EOD

CONTINGENCY, FEMA

CONTINGENCY, MOBILITY

CONTINGENCY, NCS

CONTINGENCY, NEMVAC

CONTINGENCY, SAR

A2.5.3.7. EXECUTIVE: Used by top-echelon leadership of government agency.

EXECUTIVE, ERCS

EXECUTIVE, MYSTIC STAR

EXECUTIVE, SITFA

EXECUTIVE, WWABNCP (Includes all ABNCPs)

EXECUTIVE, (CINC, MAJCOM, specified/unified commander networks)

A2.5.3.8. FIRE: Used to report the presence of a fire or to direct, control, or coordinate the operations of fire response vehicles, equipment, and personnel during fire suppression or prevention.

FIRE, ALARM

FIRE, CRASH

FIRE, EMS

FIRE, HAZMAT

FIRE, MUTUAL AID

FIRE, TRAINING

A2.5.3.9. HYDROLOGIC: Used for collection of the information regarding the waters of the Earth and its atmosphere, or for the control and management of these waters.

HYDROLOGIC

A2.5.3.10. INSPECTION: Used during brief and infrequent visits to field sites and installations by inspection teams.

INSPECTION, ATC

INSPECTION, IG

A2.5.3.11. LAW ENFORCEMENT: Used to direct, control, or coordinate law enforcement activities (for example, building and installation security or criminal investigations).

LAW ENFORCEMENT, ALARM

LAW ENFORCEMENT, CB EMERGENCY

LAW ENFORCEMENT, MUNITIONS

LAW ENFORCEMENT, MUTUAL AID

LAW ENFORCEMENT, NUCLEAR

LAW ENFORCEMENT, OSI

LAW ENFORCEMENT, SECURITY

LAW ENFORCEMENT, SPEED GUN

LAW ENFORCEMENT, TRAFFIC CONTROL

A2.5.3.12. MAINTENANCE: Used to support maintenance activities.

MAINTENANCE, ACMI

MAINTENANCE, AIRCRAFT

MAINTENANCE, CIVIL ENGINEERS

MAINTENANCE, CONTROL

MAINTENANCE, EQUIPMENT CHECKS

MAINTENANCE, INDUSTRIAL CONTROLS

MAINTENANCE, MINUTEMAN MISSILE

MAINTENANCE, MUNITIONS

MAINTENANCE, NAVAIDS,COMM

MAINTENANCE, PILOT TO MAINTENANCE

MAINTENANCE, RIDS

MAINTENANCE, SCANS

MAINTENANCE, SNOW REMOVAL

MAINTENANCE, TEST-CALIBRATION

A2.5.3.13. MEDICAL: Used to direct, control, or coordinate the activities of medical personnel and emergency vehicles.

MEDICAL, AMBULANCE

MEDICAL, EMS

MEDICAL, MUTUAL AID

A2.5.3.14. MISC: Used for a function not shown.

MISC, BATTLEFIELD SURVEILLANCE

MISC, FLIGHT SUPPORT

MISC, RDTE (experimental station class only)

A2.5.3.15. MOBILE TELEPHONE: Used to provide an interconnection between vehicular radios and landline systems.

MOBILE TELEPHONE

A2.5.3.16. NATURAL RESOURCES: Used for management, protection, and conservation of natural resources such as national forests, public lands, and wildlife.

NATURAL RESOURCES

NATURAL RESOURCES, GAME WARDEN

A2.5.3.17. NAVAIDS: Used for navigational assistance to aircraft or ships (for example, ILS, nondirectional beacon, LORAN, etc.).

NAVAIDS, ASR

NAVAIDS, GCA *(ground control approach)*

NAVAIDS, GLIDESLOPE

NAVAIDS, GPS

NAVAIDS, IFF-SIF

NAVAIDS, LOCALIZER

NAVAIDS, LORANC

NAVAIDS, MARKER BEACON

NAVAIDS, PAR

NAVAIDS, RADAR ARTCC

NAVAIDS, TACAN

NAVAIDS, VOR

NAVAIDS, VORTAC

A2.5.3.18. NAVAIDS CONTROLS: Used to activate and deactivate visual or electronic NAVAIDs (for example, runway lights, radio beacons, and unstaffed lighthouses).

NAVAIDS CONTROLS, RUNWAY LIGHTS

A2.5.3.19. PAGING: A one-way communications system to selectively call personnel. (**NOTE:** Although you may use paging systems in direct support of functions in this list, such as executive or medical, all paging assignments will show PAGING as the function name.)

PAGING, ALERT

PAGING, CENTRAL BASE

PAGING, MEDICAL

A2.5.3.20. RDTE SUPPORT: Used for communications support of RDT&E programs or projects.

RDTE SUPPORT (Enter name of project or program in SFAF Item 502)

A2.5.3.21. SEISMIC: Used to transmit measurements of stress, strain, or movements of the Earth's crust.

SEISMIC

SEISMIC, STUDIES

A2.5.3.22. SPECIAL COURIER: Used by personnel engaged in transporting valuable, sensitive, hazardous, or classified material.

SPECIAL COURIER

A2.5.3.23. SMR: A specialized mobile radio system in which private carriers provide land mobile communications service in the 806-824, 851-869, 896-901, and 935-940 MHz bands on a commercial basis to end users.

SMR (enter vendor name in SFAF Item 503)

A2.5.3.24. SPECIAL PROJECTS: Used in support of C-E systems that are generally one-of-a-kind systems (for example, Special Forces, intelligence, RF propagation systems, ground and avionics C-E weapons systems, etc.).

SPECIAL PROJECTS, CAP

SPECIAL PROJECTS, DATA LINK

SPECIAL PROJECTS, EOD

SPECIAL PROJECTS, FORACS

SPECIAL PROJECTS, GCCS

SPECIAL PROJECTS, GYC8

SPECIAL PROJECTS, HAVE QUICK

SPECIAL PROJECTS, INTEL

SPECIAL PROJECTS, LINK11

SPECIAL PROJECTS, LOW POWER

SPECIAL PROJECTS, METEOR BURST

SPECIAL PROJECTS, OTH-B

SPECIAL PROJECTS, ROTHR

SPECIAL PROJECTS, SOF

SPECIAL PROJECTS, SOUNDER

SPECIAL PROJECTS, TACTS

SPECIAL PROJECTS, TEMPEST

SPECIAL PROJECTS, THUNDERBIRDS

SPECIAL PROJECTS, TIS

A2.5.3.25. SURVEY: Used on an intermittent basis by field survey teams involved in measurement activities (for example, geodetic survey, radiation hazard monitoring, and preconstruction site survey).

SURVEY, GEODETIC

SURVEY, HASZMAT

SURVEY, MAPPING

A2.5.3.26. TELECOMMAND: Used to remotely control the operations of an unmanned vehicle (land, sea, air, or space), or to activate and deactivate instruments or devices carried by the vehicle (for example, missile destruct, guidance of remotely-piloted vehicles [RPV], control of overhead cranes, etc.).

TELECOMMAND, BARRIER

TELECOMMAND, COMMAND DESTRUCT

TELECOMMAND, DRONE

TELECOMMAND, TARGET

TELECOMMAND, TOSS

TELECOMMAND, UAV *(unmanned aerial vehicle)*

A2.5.3.27. TEST RANGE: Used in support of operations which are unique to a government test range (for example, range control, range safety, range timing, etc.).

TEST RANGE, CINETHEODOLITE

TEST RANGE, CONTROL

TEST RANGE, SAFETY

TEST RANGE, SIMULATOR

TEST RANGE, TARGET SCORING

TEST RANGE, TIMING

A2.5.3.28. TRAINING: Used to train personnel in the accomplishment of a special task or set of tasks.

TRAINING, ACMI

TRAINING, ENGINEERING

TRAINING, EW

TRAINING, EXERCISE

TRAINING, MICROWAVE

TRAINING, RADIO RELAY

TRAINING, SINCGARS

TRAINING, STRC

TRAINING, TACCS

A2.5.3.29. TRANSPORTATION: Used to coordinate the routine movement of material and/or personnel from one point to another (for example, messenger service, supply expediter, taxi dispatch, etc.).

TRANSPORTATION, CONVOY

TRANSPORTATION, EXPEDITER

TRANSPORTATION, MOTOR POOL

TRANSPORTATION, TAXI

A2.5.3.30. TRUNKING: Radio telephony using standard land mobile trunking principles.

TRUNKING

A2.5.3.31. UTILITIES: Used for the management, control, and/or distribution of utilities (for example, electric power, water, telephone service, oil, gas, etc.).

UTILITIES, ENERGY CONTROL

UTILITIES, TELEPHONE

UTILITIES, WATER

A2.5.3.32. WEATHER: Used for the transmission of meteorological information (for example, wind speed, temperature, barometric pressure, forecasts, etc.).

WEATHER, METEOROLOGICAL

WEATHER, PILOT TO METRO

WEATHER, RADAR

WEATHER, RAWS

WEATHER, RECON

A2.5.3.33. WIRELESS MIKE: A transmitting device used to provide the audio input to a speaker system. (**NOTE:** Although you can use wireless mikes in direct support of functions shown elsewhere in this list [such as RDTE or TRAINING], all assignments for these devices shall show WIRELESS MIKE as the function name.)

WIRELESS MIKE

A2.6. National Telecommunications and Information Administration Record Notes .

A2.6.1. The NTIA GMF record notes state a condition of assignment under which authority for operation was granted by the IRAC. This attachment contains a list of record notes extracted from the *NTIA Manual* which are placed against an assignment. It is important that you explain the provisions of record notes placed on an assignment to the user.

A2.6.2. Coordination Notes (SFAF Item 500):

C002 -- Subject to coordination with the Western Area Frequency Coordinator (WAFC) located at the Navy Pacific Missile Test Center, Point Mugu CA, before use within a 200-mile radius of Point Mugu or in California south of Latitude 37o 30' North.

C003 -- This frequency assignment in one of the bands 145-1535 or 2310-2390 MHz was coordinated before authorization with the WAFC who also coordinated it, as appropriate, with the AFTRCC. Use of this frequency under the authority of this assignment is subject to such further coordination with the WAFC as necessary to ensure compatibility with existing uses.

C004 -- Subject to coordination with the Eastern Area Frequency Coordinator (EAFC) located at Patrick AFB FL before use within the area bounded by 24oN 31o 30'N and 77oW 83oW.

C005 -- This frequency assignment in one of the bands 1435-1535 or 2310-2390 MHz was coordinated prior to authorization with the EAFC who also coordinated it, as appropriate, with AFTRCC. Use of this frequency under the authority of this assignment is subject to such further coordination with the EAFC as necessary to ensure compatibility with existing uses.

C006 -- Subject to coordination with the AFC located at White Sands Missile Range (WSMR) NM, prior to use in the state of New Mexico or other U.S. territory within a 150-mile radius of WSMR, plus the area of Utah and Colorado that lies south of 41o North and between 108o and 111o West. Phone: 505-678-5417 or 3702, Defense Switched Network (DSN): 258-5471 or 3702.

C007 -- This frequency assignment in one of the bands 1435-1535 or 2310-2390 MHz was coordinated prior to authorization with the AFC, WSMR, who also coordinated it, as appropriate, with the AFTRCC. Use of this frequency under the authority of this assignment is subject to such further coordination with the AFC, WSMR, as necessary, to ensure compatibility with the existing uses.

C008 -- Subject to coordination with the AFC located at the Army Electronic Proving Ground, Fort Huachuca AZ, prior to use within the State of Arizona. Phone: 602-538-6423, DSN: 879-6423.

C009 -- This frequency assignment in one of the bands 1435-1535 or 2310-2390 MHz was coordinated prior to authorization with the AFC, Fort Huachuca AZ, who also coordinated it, as appropriate, with the AFTRCC. Use of this frequency under the authority of the assignment is subject to such further coordination with the AFC, Fort Huachuca, as necessary, to ensure compatibility with existing uses.

C010 -- Subject to coordination with the Gulf AFC located at Eglin AFB FL, prior to use within the area bounded by 27oN 33o 30'N and 83oW 90oW.

C011 -- This frequency assignment in one of the bands 1435-1535 or 2310-2390 MHz was coordinated prior to authorization with the Gulf AFC, Eglin AFB FL, who also coordinated it, as appropriate, with the AFTRCC. Use of this frequency under the authority of this assignment is subject to such further coordination with the Gulf AFC, Eglin AFB FL, as necessary, to ensure compatibility with existing uses.

C012 -- Subject to prior coordination with the Joint Frequency Management Office (JFMO) located at Headquarters CINCPAC, Camp H.M. Smith HI 96861-5025.

C013 -- Subject to local coordination with Frequency Manager, AFFTC, Edwards AFB CA.

C015 -- Subject to prior coordination with Frequency Manager, Air Force Space and Missile Technical Center, Vandenberg AFB CA.

C016 -- This frequency assignment in one of the bands 1435-1535 or 2310-2390 MHz was coordinated prior to authorization with the HQ USAF Frequency Coordinator, Arlington, VA, who also coordinated with the AFTRCC. Use of this frequency under the authority of this assignment is subject to such further coordination with the HQ USAF Frequency Coordinator, Arlington, VA, as necessary, to ensure compatibility with existing uses.

C019 -- Subject to prior coordination with Army Frequency Coordinator, Central United States, ATTN: SFIS-FAC-SC, Ft. Sam Houston TX 78234-5000. Phone: 210-221-2820/2050, DSN: 471- 2820/2050.

C022 -- Subject to prior coordination with Frequency Manager, Army Missile Command, Huntsville AL.

C024 -- This frequency assignment in one of the bands 1435-1535 or 2310-2390 MHz was coordinated prior to its authorization with AFMO CONUS, Fort Sam Houston TX, who also coordinated it, as appropriate, with the AFTRCC. Use of this frequency under the authority of this assignment is subject to such further coordination with AFMO CONUS, Fort Sam Houston TX, as necessary, to ensure compatibility with existing uses.

C026 -- Subject to prior coordination with Department of Energy (DoE) Frequency Coordinator for Albuquerque Operations Office. Phone: 702-295-3458, FTS 575-3458 (weekends, holidays, and off-duty hours: 702-295-3343, FTS 575-3343).

C027 -- Subject to prior coordination with DoE AFC, Las Vegas, NV, when used within the State of Nevada or within a 160 kilometer radius of Mercury or Tonopah, NV. Phone: 702-295-3458 or 1162, FTS 575-3343. (weekends, holidays, and off-duty hours: 702-295-3343, FTS 575-3343).

C028 -- Subject to prior coordination with DoE Frequency Coordinator for Albuquerque Operations Office when used in a 160 kilometer radius of Albuquerque, NM. Phone: 702-295-3458, FTS 575-3458 (weekends, holidays, and off-duty hours: 702-295-3343, FTS 575-3343).

C030 -- The Department of Commerce is designated as control for government use of this frequency. Use under this assignment is subject to initial coordination with, and subsequent coordination as indicated by, Radio Frequency Coordinator S.I.G. Research Facilities Center, NOAA, Department of Commerce, PO Box 520197, Miami, FL 33152. Phone: 305-526-2936 (FTS 350-2936).

C031 -- Subject to prior coordination with FAA Eastern Regional Office, JFK International Airport, NY 11430, ATTN: Frequency Management Office. Phone: 718-712-8343.

C032 -- Subject to prior coordination with FAA Southern Regional Office, PO Box 20636, Atlanta, GA 30320-0344, ATTN: Frequency Management Office. Phone: 404-763-7385/6.

C033 -- Subject to prior coordination with FAA Central Regional Office, 601 East 12th Street, Kansas City, MO 64106, ATTN: Frequency Management Office. Phone: 816-426-5647.

C034 -- Subject to prior coordination with FAA Southwest Regional Office, 4400 Blue Mound, Fort Worth, TX 76193-0483, ATTN: Frequency Management Office. Phone: 817-740-3237.

C035 -- Subject to prior coordination with FAA Western Regional Office, PO Box 92007, Worldway Center, Los Angeles, CA 90009, ATTN: Frequency Management Office. Phone: 310-297-1872.

C036 -- Subject to prior coordination with FAA Alaskan Regional Office, 222 West 7th Ave., Anchorage, AK 99513. Phone: 907-243-7246 or 4399.

C037 -- Subject to prior coordination with FAA Western Pacific Regional Office, Honolulu ARTCC, P.O. Box 50109, Honolulu, HI 96850-4983, ATTN: Frequency Management Office. Phone: 808-541-1241.

C038 -- Subject to prior coordination with FAA New England Regional Office, 12 New England Executive Park, Burlington, MA 01803. Phone: 617-273-7177.

C039 -- Subject to prior coordination with FAA Great Lakes Regional Office, 2300 East Devon Avenue, Des Plaines, IL 60018. Phone: 312-694-7071.

C041 -- Subject to prior coordination with FAA Northwest Regional Office, 1601 Lind Ave Southwest, Renton, WA 98055-4056. Phone: 206-227-2464.

C042 -- This frequency assignment on 1030 MHz or in one of the bands 1215-1400, 2700-2900, or 9000-9200 MHz was coordinated prior to authorization with the FAA Northwest Coordinator, Seattle, WA. Use of this frequency or band under the authority of this assignment is subject to such further coordination with the FAA Northwest Coordinator, Seattle, WA, as necessary, to ensure compatibility with existing uses. This note applied to an AAG frequency (see *NTIA Manual*, Section 1.4.1) indicates FAA Northwest regional coordination was accomplished.

C043 -- This frequency assignment on 1030 MHz or in one of the bands 1215-1400, 2700-2900, or 9000-9200 MHz was coordinated prior to authorization with the FAA Western Coordinator, Los Angeles, CA. Use of this frequency or band under the authority of this assignment is subject to such further coordination with the FAA Western Coordinator, Los Angeles, CA, as necessary, to ensure compatibility with existing uses. This note applied to an AAG frequency (see *NTIA Manual*, Section 1.4.1) indicates FAA Western regional coordination was accomplished.

C045 -- This frequency assignment on 1030 MHz or in one of the bands 1215-1400, 2700-2900, or 9000-9200 MHz was coordinated prior to authorization with the FAA Central Coordinator, Kansas City, MO. Use of this frequency or band under the authority of this assignment is subject to such further coordination with the FAA Central Coordinator, Kansas City, MO, as necessary, to ensure compatibility with existing uses. This note applied to an AAG frequency (see *NTIA Manual*, Section 1.4.1) indicates FAA Central regional coordination was accomplished.

C046 -- This frequency assignment on 1030 MHz or in one of the bands 1215-1400, 2700-2900, or 9000-9200 MHz was coordinated prior to authorization with the FAA Southwest Coordinator, Fort Worth, TX. Use of this frequency or band under the authority of this assignment is subject to such further coordination with the FAA Southwest Coordinator, Ft. Worth, TX, as necessary, to ensure compatibility with existing uses. This note applied to an AAG frequency (see *NTIA Manual*, Section 1.4.1) indicates FAA Southwest regional coordination has been accomplished.

C047 -- This frequency assignment on 1030 MHz or in one of the bands 1215-1400, 2700-2900, or 9000-9200 MHz was coordinated prior to authorization with the FAA Great Lakes Coordinator, Des Plaines, IL. Use of this frequency or band under the authority of this assignment is subject to such further coordination with the FAA Great Lakes Coordinator, Des Plaines, IL, as necessary, to ensure compatibility with existing uses. This note applied to an AAG frequency (see *NTIA Manual*, Section 1.4.1) indicates FAA Great Lakes regional coordination has been accomplished.

C048 -- This frequency assignment on 1030 MHz or in one of the bands 1215-1400, 2700-2900, or 9000-9200 MHz was coordinated prior to authorization with the FAA Southern Coordinator, Atlanta, GA. Use of this frequency or band under the authority of this assignment is subject to such further coordination with the FAA Southern Coordinator, Atlanta, GA, as necessary, to ensure compatibility with existing uses. This note applied to an AAG frequency (see *NTIA Manual*, Section 1.4.1) indicates FAA Southern regional coordination has been accomplished.

C049 -- This frequency assignment on 1030 MHz or in one of the bands 1215-1400, 2700-2900, or 9000-9200 MHz was coordinated prior to authorization with the FAA Eastern Coordinator, New York, NY. Use of this frequency or band under the authority of this assignment is subject to such further coordination with the FAA Eastern Coordinator, New York, NY, as necessary, to ensure compatibility with existing uses. This note applied to an AAG frequency (see *NTIA Manual*, Section 1.4.1) indicates FAA Eastern regional coordination has been accomplished.

C050 -- This frequency assignment on 1030 MHz or in one of the bands 1215-1400, 2700-2900, or 9000-9200 MHz was coordinated prior to authorization with the FAA New England Coordinator, Burlington, MA. Use of this frequency or band under the authority of this assignment is subject to such further coordination with the FAA New England Coordinator, Burlington, MA, as necessary, to ensure compatibility with existing uses. This note applied to an AAG frequency (see *NTIA Manual*, Section 1.4.1) indicates FAA New England regional coordination has been accomplished.

C052 -- Subject to local coordination with FCC engineer-in-charge to avoid interference to nongovernment services.

C057 -- Subject to prior coordination with the National Aeronautics and Space Administration (NASA) Spectrum Manager, Johnson Space Center, Houston, TX. Phone: 713-483-0122, FTS 525-0122.

C060 -- Subject to prior coordination with and concurrence by the commander of the military installation listed.

C061 -- Operational use of this frequency assignment was coordinated with and concurred by the commander of the military installation listed.

C062 -- DoE use of this frequency for telemetering is subject to prior coordination at the national level with agencies having assignments in the same band, and is subject, at the time of such coordination, to adjustment to preclude harmful interference.

C064 -- All transmission to NASA's ATS-1 through 5 satellites shall be coordinated and scheduled with the ATS Project Manager or the ATS Experiments Manager, ATS 1/5, Lewis Research Center, Cleveland, Ohio 44135. Telephone (216) 433-3483 or 433-3570.

C065 -- Subject to coordination, prior to use, with the Bureau of Land Management, Chief Communications Management, Boise Interagency Fire Center, Boise, ID. Phone: 208-334-9880, FTS 554-9880.

C067 -- Subject to coordination with the AFC located at Nellis AFB, NV, prior to use in the states of Nevada, Utah west of 111 degrees W, and Idaho south of 44 degrees N.

C068 -- This frequency assignment in one of the bands 1435-1535 or 2310-2390 MHz was coordinated prior to authorization with the AFC, Nellis AFB, NV, who also coordinated it, as appropriate, with the AFTRCC. Use of this frequency under the authority of this assignment is subject to such further coordination with the AFC, as necessary, to ensure compatibility with existing uses.

C069 -- Subject to coordination and scheduling with Mr Carl Staton, National Environmental Satellite, Data, and Information Service, U.S. Department of Commerce, Chief, Data Collection and Direct Broadcast Branch (E/SP21), Washington, DC 20223; Phone: 301-763-8326.

C071 -- This frequency assignment on 1030 MHz or in one of the bands 1215-1400, 2700-2900, or 9000-9200 MHz was coordinated prior to authorization with the FAA Alaskan Coordinator, Anchorage, AK. Use of the frequency or band under the authority of this assignment is subject to such further coordination with the FAA Alaskan Coordinator, Anchorage, AK, as necessary, to ensure compatibility with existing uses. This note applied to an AAG frequency (see *NTIA Manual*, Section 1.4.1) indicates FAA Alaskan regional coordination has been accomplished.

C072 -- This frequency assignment on 1030 MHz or in one of the bands 1215-1400, 2700-2900, or 9000-9200 MHz was coordinated prior to authorization with the FAA Pacific Coordinator, Honolulu, HI. Use of this frequency or band under the authority of this assignment is subject to such further coordination with the FAA Pacific Coordinator, Honolulu, HI, as necessary, to ensure compatibility with existing uses. This note applied to an AAG frequency (see *NTIA Manual*, Section 1.4.1) indicates FAA Pacific regional coordination has been accomplished.

C073 -- Subject to prior coordination with NASA Spectrum Manager, Wallops Flight Center, Wallops Island, VA. Phone: 804-824-1278, FTS 8-889-1278.

C074 -- Operational activities are coordinated with NASA Spectrum Manager responsible for JPL/Goldstone Programs. Mail: 4800 Oak Grove Drive, Mail Stop 303-404, Pasadena, CA 91109. Phone: 818-354-0068, FTS 8-792-0068.

C075 -- This assignment was coordinated with the Hydrology Committee according to *NTIA Manual*, Section 8.3.6.

C076 -- This assignment was coordinated with the Radio Spectrum Manager, National Science Foundation, 1800 G St, NW, Washington, DC 20550. Phone: 202-357-9696 according to NTIA Manual, Section 8.3.7 for the band 1660-1670 MHz, or Section 8.3.19.

C078 -- The domestic fixed aspects of this assignment were coordinated with NTIA according to Section 8.2.11 of the *NTIA Manual*.

C079 -- Subject to prior coordination with DoE Frequency Coordinator, Bonneville Power Administration, Portland, OR. Phone: 503-234-3361 ext. 4368, when used within the states of Washington, Oregon, Idaho, or Montana West of 112 degrees W.

C080 -- Subject to prior coordination with the Department of the Interior (DoI), U.S. Geological Survey, Office of Earthquakes, Volcanoes, and Engineering, Menlo Park, CA, Communications Coordinator, Phone: 415-329-4780 or 4727, FTS 459-4780 or 4727, and subject to adjustment in the event of interference to DoI operations within the same splinter channel (see *NTIA Manual*, Section 4.3.7).

C081 -- This assignment is for a station in the National Radio Quiet Zone. Successful coordination was effected according to *NTIA Manual*, Section 8.3.9.

C085 -- Subject to prior coordination with Army Frequency Coordinator, Military District of Washington, ATTN: ASNK-OPB, Fort Lesley J. McNair, Washington, DC 20319-5050. Phone: 202-475-2554 or 2486, DSN: 335-2554 or 2486.

C086 -- This frequency assignment in one of the bands 1435-1535 or 2310-2390 MHz was coordinated prior to authorization with the Mid-Atlantic AFC, Patuxent River, MD, who also coordinated it, as appropriate, with the AFTRCC. Use of this frequency under the authority of this assignment is subject to such further coordination with the AFC, as necessary, to ensure compatibility with existing uses.

C088 -- Prior to use, this frequency assignment must be scheduled with the Post Frequency Manager, Aberdeen Proving Ground, MD. Phone: 410-278-7591, DSN: 298-7591.

C089 -- This frequency assignment was coordinated prior to authorization with FAA Headquarters, 800 Independence Avenue, SW, Washington, DC 20591. Phone: 202-267-8699.

C090 -- In the band 162 to 174 MHz. subject to coordination with adjacent channel users (bandwidth less than 11 kHz) prior to establishing a station on an interstitial channel under S322 procedures. This note is automatically deleted on January 1, 2003.

C091 -- This frequency assignment in one of the bands 1435-1535 or 2310-2390 MHz was coordinated with the following AFCs: Western AFC, Point Magu CA; Eastern AFC, Patrick AFB FL; AFC WSMR NM; AFC Fort Huachuca, AZ; Gulf AFC, Eglin AFB, FL; HQ USAF Frequency Coordinator, Washington DC; Army Frequency Coordinator, Fort Sam Houston TX; AFC Nellis AFB NV; Mid-Atlantic AFC, Patuxent River MD. This assignment was also coordinated with AFTRCC. Use of this frequency under the authority of this assignment is subject to such further coordination with the appropriate AFC as necessary to ensure compatibility with existing uses.

A2.6.3. Emission Notes (SFAF Item 500).

E013 -- A3 emission authorized for secondary and intermittent operation.

E023 -- F3 emission authorized for maintenance and test communications only.

E028 -- Lower sideband transmission. The carrier is higher than the assigned frequency shown by one-half of the indicated bandwidth. (**NOTE:** Applies to single-sideband [SSB] transmission.)

E029 -- Upper sideband transmission. The carrier is lower than the assigned frequency shown by one-half of the indicated bandwidth. (**NOTE:** Applies to SSB transmission.)

E030 -- Lower sideband greater. The suppressed carrier is higher than the assigned frequency shown by 1.5 kHz. (**NOTE:** Applies to two or more independent sideband channels.)

E031 -- Upper sideband greater. The suppressed carrier is lower than the assigned frequency shown by 1.5 kHz. (**NOTE:** Applies to two or more independent sideband channels.)

E032 -- Lower sideband greater. The suppressed carrier is higher than the assigned frequency shown by .5 kHz. (**NOTE:** Applies to two or more independent sideband channels.)

E033 -- Upper sideband greater. The suppressed carrier is lower than the assigned frequency shown by .5 kHz. (**NOTE:** Applies to two or more independent sideband channels.)

E035 -- Lower sideband SSB transmission. (**NOTE:** Applies to SSB transmission.)

E036 -- Upper sideband SSB transmission. (**NOTE:** Applies to SSB transmission.)

E037 -- Full-carrier SSB emission (3KH3E) shall be used except: (1) when it is known that the receiving station is capable of receiving suppressed-carrier emission (3KJ3E), and (2) on request of any station using the same carrier frequency (Ref: FCC 87.67b).

E038 -- When a single sideband emission is used from the various emissions shown on this HF assignment, set the carrier frequency to place the center of intelligence at the assigned frequency.

E039 -- The authorized emission bandwidth shall be so located within the band so that it does not extend beyond the upper or lower limits of the authorized band shown in the *FRB entry of circuit remarks. If a portion(s) of the authorized band is to be excluded (*FBE) the authorized emission bandwidth must not extend into any portion(s) of the excluded band(s).

A2.6.4. Limitation Notes (SFAF Item 500)

L002 -- Restricted to (daytime, nighttime, or indicated hours of operation). When used here, the term daytime means from two hours after local sunrise until two hours before local sunset. The term nighttime only means from two hours prior to local sunset until two hours after local sunrise at a specified point. Local time at transmitter is applicable unless otherwise specified.

L003 -- For communication with _____ stations only.

L012 -- Used only in an emergency jeopardizing life, public safety, or important property under conditions calling for immediate communication where other means of communication do not exist or are temporarily disrupted or inadequate. To ensure that radio equipment for emergency use is maintained in satisfactory condition, testing on such frequencies is permitted, provided that insofar as practical, transmitters are tested with a nonradiating load and the test use of a radiating antenna held to a minimum, and provided further that such testing is restricted to test message traffic and does not include operator training.

L109 -- Restricted to non-air carrier operations normally unavailable to military aircraft.

L113 -- L012 FX.

L116 -- L2 daytime.

L121 -- L2 daytime Hawaii and westward.

L125 -- L2 local sunrise to local sunset.

L127 -- L2 local sunset to local sunrise.

L131 -- L2 nighttime.

L168 -- L3 GCA or approach control.

L171 -- L3 Department of Agriculture.

L174 -- L3 Army.

L177 -- L3 Federal Aviation Administration.

L180 -- L3 Coast Guard.

L182 -- L3 Department of Interior.

L187 -- L3 Military.

L188 -- L3 Military aircraft or aircraft authorized for military use.

L190 -- L3 Navy.

L192 -- L3 nongovernment.

L193 -- L3 nongovernment aircraft.

L195 -- L3 nongovernment coast stations.

L197 -- L3 nongovernment public correspondence.

L199 -- L3 nongovernment ships.

L201 -- L3 public correspondence.

L203 -- L3 U.S. Army Corps of Engineers.

L207 -- L3 civil aircraft.

L242 -- L2 1300-2300 Greenwich Mean Time (GMT).

L255 -- L2 0200-0730 GMT.

L256 -- L2 0200-0800 GMT and 1800-2300 GMT.

L257 -- L2 0600-2100 GMT.

L278 -- L2 0200-1100 GMT.

L282 -- This assignment is for "backup use" only when regular channels are either temporarily disrupted or inadequate.

L283 -- Limited to communications in or near a port, or in locks or waterways, between coast stations and ship stations or between ship stations, in which messages are restricted to those related to the operational handling, the movement and safety of ships, and, in emergencies, to the safety of persons. Exclude messages which are of a public correspondence.

L294 -- L2 1400-2200 GMT.

L298 -- Limited to communications with CAP radio stations when engaged in training or on an actual CAP mission in support of USAF.

L304 -- L2 1500-0800 GMT April through September; 1800-0500 GMT October through March.

L308 -- L3 Department of Commerce.

L309 -- L012 FB.

L318 -- Authority under this assignment is limited to temporary periods and locations for telemetry of seismic data.

L330 -- This assignment limited to communications with nongovernment ships for the exchange of traffic dealing with safety of life or property when other means of communication are not practicable.

L331 -- L2 0900-1300 and 1400-1600 GMT.

L332 -- L2 2200-0300 GMT.

L334 -- L2 0330-1830 GMT.

L336 -- L2 1000-1700 GMT.

L339 -- L2 1200-0300 GMT.

L341 -- Limited to operations conducted according to bridge-to-bridge portion of *NTIA Manual*, Section 8.2.29.

L343 -- L3 Tennessee Valley Authority.

L347 -- L2 2330-2230 GMT.

L350 -- Limited to use from 15 November to 1 April.

L351 -- L2 2000-1000 GMT.

L353 -- L2 0100-0600 Local.

L355 -- Limited to ground transmissions only.

L356 -- Mobile transmission allowed only according to *NTIA Manual*, Section 7.5.5.

L357 -- This band assignment is authorized only for air/ground frequency assignment in the AAG/MAG bands (118-137 MHz and those frequencies utilized by the FAA for air traffic control in the 225-328.6 and 335.4-400 MHz band) and is for "back-up" use only when regular channels are either temporarily disrupted or inadequate. Actual frequencies will be listed in Agency Remarks.

A2.6.5. Minute Notes (M Notes) (SFAF Item 501).

M001 -- A note concerning this assignment is recorded in the minutes of the FAS meeting at which the application was approved. The source of the note is identified in the "CIRCUIT REMARKS" field (*NTS).

M002 -- This assignment was coordinated with IRAC or NTIA, and/or is subject to the conditions stated in the letter, the IRAC document, the FAS docket, or the FCC regulation referenced in the "CIRCUIT REMARKS" field (*NTS).

M003 -- Subject to coordination prior to activation and, as appropriate, possible scheduling with the activities or stations listed in the "CIRCUIT REMARKS" field (*NTS).

M004 -- Subject to coordination prior to activation and, as appropriate, possible scheduling with the activities listed in the "CIRCUIT REMARKS" field (*NTS) when used within interference range of such activities or stations.

M006 -- Subject to coordination prior to activation with the National Weather Service meteorologist-in-charge at the locations listed in the "CIRCUIT REMARKS" field (*NTS).

M007 -- Subject to notification of activation to the agency or activity listed in the "CIRCUIT REMARKS" field (*NTS).

M008 -- Operations under the authority of this assignment are subject to immediate adjustment, including cessation, if they result in harmful interference to the operations listed in the "CIRCUIT REMARKS" field (*NTS).

M009 -- Operations under the authority of this assignment are: (a) on a NIB to the operations of the agency listed in the "CIRCUIT REMARKS" field (*NTS) on the same or adjacent channel, and (b) when no protection is afforded by that agency.

M010 -- This assignment was agreed to on a nonrenewable basis by the agency identified in the "CIRCUIT REMARKS" field (*NTS).

M011 -- Limited to the nonbroadcast hours of and subject to coordination prior to activation with the stations listed in the "CIRCUIT REMARKS" field (*NTS).

M013 -- Subject to prior coordination with and concurrence by the organization/official listed in the "CIRCUIT REMARKS" field (*NTS) and to temporary cessation when required for marine environmental operations.

MO14 -- During transmission, aircraft will not exceed the altitude listed in the "CIRCUIT REMARKS" field (*NTS).

MO15 -- The system using this assignment was reviewed by the SPS according to Chapter 10 of the *NTIA Manual*, and the assignment is made subject to conditions stated in the IRAC and SPS documents referenced in the "CIRCUIT REMARKS" field (*NTS).

M016 -- This assignment, made pursuant to Resolution 8 of the GWARC-79, is for planning purposes and is not an authority to operate. Operations may commence after satisfactory replacement action is completed for (FAS DKT number--optional: frequency, agency serial number), and/or after (XXYY) (date agreed toby displaced agency).

A2.6.6. Priority Notes (SFAF Item 500).

P032 -- NIB.

P074 -- Not to preclude expansion and adjustment of operations within the band 162.0 to 174.0 MHz by nonmilitary government agencies.

P076 -- Not to preclude expansion and adjustment of operations within the band 406.1 to 420.0 MHz by non-military government agencies.

A2.6.7. Special Notes (SFAF Item 500).

S012 -- This operation does not include operator qualification training, but is a periodic operation of a communications system manned by fully qualified operators who are military reservists or affiliates. Except in emergencies, this frequency assignment is not used as a means for passing traffic that, in the absence of this authorization, would require delivery by other means.

S015 -- Remote control.

S017 -- This assignment is for the training of personnel in the technique and operational aspects of the electronic equipment.

S032 -- Common simplex channel for emergency and distress communications only. Available to all stations operating in or with aeronautical services.

S034 -- Disaster communications.

S035 -- Distress, safety and calling.

S038 -- FAC operation simultaneous with RLL.

S041 -- For calibrating direction finders.

S043 -- For emergency use at scene of air sea rescue.

S047 -- For transmission of hydrologic and meteorological data.

S048 -- For transmission of hydrologic data.

S059 -- Radio direction finding.

S063 -- SAR communications.

S067 -- Subject to Bureau of Indian Affairs net control.

S068 -- Subject to immediate shutdown as needs of service dictate.

S070 -- Subject to immediate cancellation upon notice from FCC.

S085 -- Training and testing operations.

S120 -- Intermittent equipment tests.

S139 -- You must discontinue transmissions on this frequency on receipt of notification to the effect that harmful interference is affecting to the international broadcasting service.

S141 -- This U.S. Government record is outside of the US&P and, therefore, does not fall within the jurisdiction of the NTIA and IRAC/FAS. This record is incorporated into the GMF for spectrum management, analysis, and information purposes and does not constitute NTIA authority to transmit.

S142 -- Drone control.

S144 -- This assignment is not in complete conformity with the National Table of Frequency Allocations. Those operations that are conducted under the nonconforming portions of this assignment are on a secondary basis to operations conducted under assignments that are in conformity with the National Table of Frequency Allocations.

S145 -- This frequency is subject to adjustment on notice from the Military.

S147 -- These frequencies are used for a very short time only during actual nuclear tests or dry runs prior to an actual test. Such use of frequencies will be on a secondary basis subject to the avoidance of harmful interference to all operations established according to international allocations applicable to these frequencies and to all other operations regularly authorized within the US&P on specific frequencies within these bands.

S148 -- This is an assignment for domestic service use in providing instantaneous transmission of vital emergency operational command and alerting traffic of such importance as to affect the immediate survival and defense of the Nation. Maintain circuits utilizing this frequency in an operational status at all times with on-the-air test transmissions to ensure the highest degree of readiness. This assignment

requires protection commensurate with the importance of the communications for which the circuit is intended.

S149 -- Any use of this assignment that is not at a transient location or that is for a period exceeding 15 days shall be notified to the FAS.

S154 -- Scene of disaster frequency.

S155 -- For interception and retransmission of television signals.

S157 -- Nongovernment service.

S159 -- United States Government short-distance, low-power service.

S160 -- This assignment was made pursuant to Part 7.12 of the *NTIA Manual* and was coordinated according to Section 8.3.3.

S164 -- This assignment is not in complete conformity with the National Table of Frequency Allocations. Nevertheless, in the national interest, it is on an equal basis with assignments that are in conformity with the National Table of Frequency Allocations.

S165 -- This assignment was made pursuant to Section 7.5.2 of the *NTIA Manual* for communication with nongovernment stations in the MM service.

S170 -- Authorized additionally in tactical and training operations when employing SSB equipment with 3KH3E, 4KJ7B, and 4KJ9W emissions for use with PEPs not to exceed 2000 watts. In such operations the following additional conditions are applicable. All necessary emissions under the several modes of operation, including reduced carriers, will be within + 3 kHz of the listed frequency. If harmful interference is caused to authorized operations, you will reduce the power of this operation to the mean power shown for this listing. In the determination of particular listed frequencies and associated carrier frequencies to meet individual tactical needs, give due consideration, particularly when using power in excess of the powers normally authorized on this frequency, to the avoidance of harmful interference to radio services authorized on the same or adjacent frequencies. With respect to the conduct of peacetime training operations, such use of the frequency is on a NIB to the authorized operations of other agencies.

S171 -- Authorized additionally in tactical and training operations when employing SSB equipment with 3KH3E, 4KJ7B, and 4KJ9W emissions for use with PEPs not to exceed 400 watts. In such operations the following additional conditions are applicable. All necessary emissions under the several modes of operation, including reduced carriers, will be within + 3 kHz of the listed frequency. If you cause harmful interference to authorized operations, you must reduce the power of this operation to the mean power shown for this listing. In the determination of particular listed frequencies and associated carrier frequencies to meet individual tactical needs, give due consideration, particularly when using power in excess of the powers normally authorized on this frequency, to the avoidance of harmful interference to radio services authorized on the same or adjacent frequencies. With respect to the conduct of peacetime training operations, use the frequency on a NIB to the authorized operations of other agencies.

S179 -- Power shown is for emergency use only. Normal power is 4 kilowatts (kW) or less.

S181 -- This assignment authorized pursuant to Public Law 87-795.

S185 -- Secondary service. Maximum number of transmitters authorized: 10.

S186 -- Power shown is for intermittent or emergency use. Normal power is 20 kW.

S187 -- Power shown is for emergency use. Normal power is 2.5 kW.

S189 -- Tactical and/or training operations.

S195 -- Safety communications.

S199 -- USN operations authorized by assignments bearing this note shall not cause harmful interference to nongovernment operations existing at the time of authorization. The USN agrees to make such adjustments of its group of HF coast telegraph assignments bearing this note to as many as are needed to accommodate necessary expansion or adjustment of the nongovernment coast telegraph service.

S200 -- Joint Chiefs of Staff (JCS) communication circuit.

S205 -- Civil defense network.

S206 -- This assignment is for an operation where other telecommunications facilities do not exist, are inadequate, or are impracticable of installation, and for which the use of frequencies above 30 MHz is not practicable. This note applies to FX or AX station classes only.

S208 -- This assignment is for the domestic haul of overseas traffic in transit or destined for the United States for an operation where technical and operational requirements dictate such use. The domestic radio haul is a segment of the overall overseas radio system.

S211 -- 50 kW mean power used during emergency or unusually poor propagation conditions. 10 kW mean power used during normal conditions. 2.5 kW mean power used during unusually good propagation conditions.

S219 -- Power shown is for emergency use. Normal power is 3 kW.

S227 -- Power shown is for emergency use. Normal power is 1.5 kW.

S233 -- This assignment is part of a frequency pool, and, with Department of State approval, is used by foreign embassies that are authorized the use of other frequency assignments under Public Law 87-795.

S242 -- The NASA unified S-band system operates in the 2270-2290 MHz portion of the 2200-2290 MHz space telemetering band on a shared basis. This system is used in space missions of extended duration. In certain geographical areas, NASA may request agencies conducting telemetering operations on the shared frequencies in the 2270-2290 MHz band to adjust such operations, as necessary, to support the space mission involved.

S264 -- This assignment will not be used except in the event full-scale atmospheric nuclear testing is resumed, and it is further subject to prior coordination with CINCPAC.

S265 -- Direct transmissions to avoid harmful interference to FAA stations in the Edwards AFB area.

S267 -- Required for use in emergency areas when needed to make initial contact with RACES units. Also for communications with RACES stations on matters requiring coordination.

S279 -- This listing represents the use of a laser for telecommunication purposes and is entered in the GMF for information.

S286 -- The Coast Guard agrees to make such adjustments in its coast telegraph operations, as necessary, to provide an accommodation for nongovernment coast radiotelegraph operations anticipated by the designation of this frequency in *FCC Rules and Regulations* , Part 81.

S288 -- This frequency assignment is to support the National Command Authority. Maintain circuits using this frequency in operational status at all times.

S291 -- Operations are subject to compliance with *FCC Rules and Regulations*, Part 87, Subpart C. Provide advisory service to any private aircraft on request. The use of this frequency shall not be a deterrent to the establishment of a nongovernment advisory station in this area. Cease operations on this frequency upon the establishment of nongovernment facilities or on notice of harmful interference thereto.

S292 -- Not a bar to complete operational implementation of common system aids to Air Navigation.

S295 -- This assignment was authorized for WSMR according to IRAC Documents 13783/1-2.3.6 and 21746/1-2.3.6, and is to be reviewed on 31 December 1995.

S296 -- Not to preclude assignment of this frequency to other agencies at specific locations.

S298 -- Subject to United States Fish and Wildlife Service net control.

S299 -- Power shown is into a buried vertical dipole. ERP is approximately 1 kW.

S301 -- Operations under the authority of this assignment are (a) not protected from harmful interference caused by authorized stations operating according to the National Table of Frequency Allocations, and (b) subject to immediate adjustment, including cessation, if they result in harmful interference to authorized stations operating according to that table.

S302 -- Subject to the understanding that equipment will not be developed for operational use in this band.

S303 -- Subject to the understanding that there is no intended operational use of this equipment within US&P.

S321 -- This assignment is for planning purposes not to exceed 3 years (see *NTIA Manual*, Section 9.6.5). Delete the note after the assignment has been activated, or this assignment will be deleted after specific locations are notified.

S322 -- Stations established under the authority of this assignment shall conform to its technical particulars and shall be notified, as specified in *NTIA Manual*, Section 9.1.3 for inclusion in the list of Frequency Assignment to Government Radio Stations.

S323 -- This assignment is for use in a system, or research and development looking toward such a system, for which funds were committed for Stage 1 (Planning [Conceptual]), as defined in *NTIA Manual*, Section 10.3.1 prior to 1 January 1973. Follow-on stages in the system life cycle are subject to the provisions of *NTIA Manual*, Part 10.3.

S324 -- This assignment is for use in a system, or research and development looking toward such a system, for which funds were committed for Stage 2 (Experimentation), as defined in *NTIA Manual*, Section 10.3.1 prior to 1 January 1973. Follow-on stages in the system life cycle are subject to the provisions of *NTIA Manual*, Part 10.3.

S325 -- This assignment is for use in a system, or research and development looking toward such a system, for which funds were committed for Stage 3 (Development), as defined in *NTIA Manual*, Section 10.3.1, prior to 1 January 1973. Follow-on stages in the system life cycle are subject to the provisions of *NTIA Manual*, Part 10.3.

S326 -- This assignment is for use in a system, or research and development looking toward such a system, for which funds were committed for Stage 4 (Procurement), as defined in *NTIA Manual*, Section 10.3.1, prior to 1 January 1973.

S327 -- Marine environmental protection command/control/surveillance operations. Authorized additionally for other MM operations when not required for marine environmental purposes.

S328 -- This assignment is not planned for renewal. It was replaced by another assignment.

S330 -- You must provide the equipment nomenclature or appropriate equipment coding within six months after activation of the authorized stations.

S334 -- Subject to Bureau of Land Management net control.

S335 -- This telemetry assignment is on a noninterference, nonprotected basis as concerns assignments in the aeronautical mobile service.

S337 -- This ITU, Appendix 18 frequency for public correspondence from ships to coast stations is assigned to a remote Coast Guard lighthouse because it has no other means for entering the RCA ALSCOM System.

S340 -- For use in support of DoE scientific missions with protected status for short periods of time during actual operations. Such use requires coordination between the DoD and DoE, on a scheduled basis.

S341 -- Subject to the continued applicability of note P074, this WSMR assignment is exempt from the requirement to convert to a frequency listed in *NTIA Manual*, Section 4.3.7.

S343 -- Within the areas listed in footnote US117 in the National Table of Frequency Allocations, operations under the authority of this assignment, other than those of mobile stations, are subject to prior coordination with the Secretary of the Committee on Radio Frequencies of the National Academy of Sciences.

S344 -- This assignment was granted a waiver and need not comply with the provisions of *NTIA Manual*, Section 8.2.20.

S345 -- DoE operations in the band 4400-4990 MHz under this authority are for emergency deployment of the National Emergency Security Team (NEST) system. For such use in a given area, DoE will select clear channels based on current GMF records. If time permits, DoE will coordinate specific frequencies with the appropriate military frequency managers/coordinators in the field. Do not conduct tests and training under this authority; frequency applications for such operations will be submitted to the FAS/IRAC on a case-by-case basis.

S346 -- This FAA assignment in the band 118-136 MHz is for standby equipment and is used interchangeably with a co-channel assignment at a separate site.

S348 -- Operations are subject to compliance with *FCC Rules and Regulations*, Part 95, subpart D. Only employees of the Federal Government may operate transmitters for the purpose of interfacing with non-government licensees to coordinate essential and mutual activities. The FCC may revoke this authority at any time.

S349 -- Not to preclude assignment of this frequency outside of normal land mobile interference range (excluding skip and sporadic E reflection, etc.) of DoE receive stations.

S350 -- In the frequency band 30-400 MHz for this FAC operation, power shown is for primary equipment. Backup equipment was engineered and installed with output power up to 35 watts. Use of this backup equipment is authorized during emergencies and/or failure of primary equipment.

S351 -- This assignment is planned for implementation or deletion as a consolidation of frequencies being used.

S352 -- This assignment is for intermittent wide area requirements of transient, itinerant nature pursuant to *NTIA Manual*, Section 4.2.3.

S353 -- This assignment is for a common-use frequency pursuant to *NTIA Manual*, Section 4.2.4.

S354 -- This planned assignment is for a space project that was approved in principle by NTIA in the research/development phase. Some operational characteristics were not determined. This listing does not provide authority to transmit.

S357 -- Power shown is for emergency use only. Normal power is 10 kW.

S358 -- This assignment is exempt from referral to NTIA by Exception 1 of the domestic fixed policy in Section 8.2.11 of the *NTIA Manual.*

S359 -- This assignment is exempt from referral to NTIA by Exception 2 of the domestic fixed policy in Section 8.2.11 of the *NTIA Manual.*

S360 -- This assignment is exempt from referral to NTIA by Exception 3 of the domestic fixed policy in Section 8.2.11 of the *NTIA Manual.*

S361 -- Multiple transmitting and/or receiving stations operating at fixed locations are involved in this assignment and, it is not feasible to indicate all specific locations. (Fully explain the method of operation in supplementary details when S361 is applied to a frequency assignment.)

S362 -- One or more transportable transmitting and/or receiving stations are utilized in this assignment.

S366 -- Operations will be outside the U.S./Canada Border Zone or power used while operating in the Border Zone will not exceed 5 watts.

S367 -- This frequency assignment was made on an exceptional basis for operation in the National Radio Quiet Zone on the conditions that use is minimized consistent with operational requirements and that any technical modification to this assignment is coordinated according to *NTIA Manual*, Section 8.3.9.

S368 -- Subject to Department of Interior (DoI), Bureau of Reclamation net control.

S369 -- This assignment is according to *NTIA Manual*, Section 8.2.44.

S370 -- Transportable Earth station operations in the 7300-7750 MHz and 8025-8400 MHz bands are deployed in such a manner as not to cause harmful interference to existing assignments and will adjust to allow additional stations of other radio services in these bands, as required.

S371 -- This assignment is according to Chapter 10 and Part 7.14 of the *NTIA Manual*.

S372 -- This assignment for the San Francisco/Pt. Reyes area is subject to adjustments to accommodate new systems/programs or reassignments resulting from the implementations of these systems/programs.

S373 -- This assignment, in the 2700-2900 MHz band, is for operations in a designated heavily used area or for collocated operation (see Annex D of the *NTIA Manual*). This equipment has the capability of implementing the additional EMC provisions of RSEC Criteria D under Section 5.3 of the *NTIA Manual*. Implementation of this capability may be necessary at a later date.

S375 -- Operations authorized by assignments bearing this note are subject to the GMF recording method developed according to IRAC Doc 23200/1 (FAS ADM 830029/1).

S376 -- Operations on this frequency are under the direct control of the United States Department of Agriculture, Forest Service.

S378 -- In emergency situations, a maximum power of 25 watts for ship stations and 10 watts for coast stations is authorized.

S379 -- This assignment shall expire on conclusion of the OPERATION ALLIANCE mission.

S380 -- This assignment is for a new or replacement frequency according to the provisions of MOB-87, and will not become effective until 0001 UTC 1 July 1991.

S381 -- Operations under this assignment are for SHARES traffic according to Section 7.3.5 of the *NTIA Manual*.

S382 -- This record is retained for spectrum management and analysis purposes, and does not constitute an NTIA authority to transmit.

S383 -- This sounder assignment complies with Section 8.2.21 of the *NTIA Manual*. The frequency bands listed in paragraph 1.c. of Section 8.2.21 have been suppressed. The information required by paragraph 2 of Section 8.2.21 is provided in the supplemental details of this assignment.

S384 -- This assignment was made pursuant to Part 4.3.2 of the *NTIA Manual*.

S385 -- This GMF listing identifies passive sensor or radio astronomy receiving stations for spectrum management and analysis purposes, and does not constitute an NTIA authority to transmit. Interference protection to the receiving station is afforded only to the extent provided in the National Table of Frequency Allocations.

S386 -- Operations authorized by assignments bearing this note are restricted to direct support of the OPERATION ALLIANCE mission, and are subject to the management and control of the U.S. Customs Service.

S387 -- Upon implementation of narrowband operations this channel will be vacated.

S388 -- This assignment supports DSCS Operations Center earth stations limited to locations at Fort Detrick, and Fort Meade, MD, and Camp Roberts, CA. This assignment shall not preclude new terrestrial assignments within or overlapping the frequency band 7250-7750 MHz provided each new terrestrial assignment does not exceed a maximum tolerable interfering power of -141.3 dBm in any 30 kHz bandwidth at the earth station receiver. In addition, this assignment has no priority over either future meteorological-satellite systems (see G104) or terrestrial assignments authorized prior to 26 April 1994.

S389 -- The bands 2390-2400, 2402-2417 and 4660-4685 MHz were identified for immediate reallocation, effective 10 August 1994, for exclusive nongovernment use under Title VI of the Omnibus Budget Reconciliation Act of 1993. Effective 10 August 1994, any Government operations in these bands are on a NIB to authorized nongovernment operations and shall not hinder the implementation of any nongovernment operations.

S514 -- This assignment supports NASA Space Project ATS-3.

S518 -- This assignment supports NASA Space Project ATS-1.

S544 -- This assignment supports NASA Deep Space Project PIONEER.

S545 -- This assignment supports NASA/Commerce Earth Exploration Service Space Program LANDSAT.

S553 -- This assignment shall expire on completion of Space Project Defense Meteorological Satellite Program Block 5.

S558 -- This assignment shall expire on completion of Space Project SAMSO 080-70.

S566 -- This assignment shall expire on completion of Space Project Advanced Technology Satellite Global Positioning System.

S567 -- This assignment shall expire on completion of Space Project Deep Space Program.

S569 -- This assignment shall expire on completion of Space Project Transit Improvement Program (TIP).

S570 -- This assignment shall expire on completion of Space Project FLEETSATCOM.

S571 -- This assignment shall expire on completion of Space Project LES 8/9.

S572 -- This assignment shall expire on completion of Space Project Air Force Satellite Data System.

S573 -- This assignment supports NASA Space Program IUE.

S574 -- This assignment supports NASA Space Program ISEE.

S575 -- This assignment supports NASA Space Program TDRSS.

S576 -- This assignment supports NASA Space Program Space SHUTTLE (STS).

S578 -- This assignment supports NASA Space Program NIMBUS-7.

S580 -- This assignment shall expire on completion of Space Project GAPFILLER (MARISAT).

S584 -- This assignment shall expire on completion of Space Project SAMSO 26-79.

S589 -- This assignment supports NASA Space Program IMP-8.

S594 -- This assignment is for Space System GOES.

S595 -- This assignment shall expire on completion of Space Project GPS PHASE II.

S597 -- This assignment is in support of Navy Space Surveillance System.

S598 -- This assignment shall expire upon completion of Space Project SOLAR RADIATION SERIES.

S603 -- This assignment is in support of SGLS operations.

S604 -- This assignment is in support of foreign space systems and it is not intended for operation by the United States.

S606 -- This assignment will expire on completion of Space Project NATO (North Atlantic Treaty Organization) IIIA.

S614 -- This assignment shall expire on completion of Space Project SAMSO 28-77.

S616 -- This assignment shall expire on completion of Space Project DSCS PHASE II.

S617 -- This assignment supports NASA Space Program SAR.

S619 -- This assignment is in support of the INTELSAT V.

S621 -- This application is in support of a DoD space project.

S622 -- This assignment supports NASA Space Program DE-A.

S625 -- This assignment expires on completion of Space Project IUS.

S626 -- This assignment shall expire on completion of Space Project LEASAT (FLTSATCOM-A).

S627 -- This assignment is in support of the Small Business Satellite.

S629 -- This assignment is in support of Space System TIROS-N.

S632 -- This assignment supports NASA Deep Space Program VOYAGER.

S633 -- This assignment supports NASA Deep Space Program GALILEO.

S634 -- This note is used in conjunction with S604, to reflect assignments used by NASA in a cooperative effort with the European Space Agency (ESA) in support of Space Program ULYSSES (formerly known as the International Solar Polar Mission [ISPM]).

S641 -- This assignment supports NASA Space Program Space Telescope (ST).

S642 -- This assignment supports the NASA Space Program Solar Mesosphere Explorer.

S643 -- This assignment shall expire upon completion of Space Project DSCS Phase III.

S646 -- This assignment supports NASA Space Program AMPTE.

S647 -- This assignment supports NASA Space Program ERBS.

S648 -- This assignment shall expire upon completion of Space Project GEOSAT-A.

S651 -- This assignment supports NASA Space Program Space Station.

S655 -- This assignment supports NASA Deep Space 30 GHz Systems.

S657 -- This assignment supports NASA Deep Space Program Venus Radar Mapper (VRM).

S661 -- This assignment is in support of the Strategic Defense Initiative (SDI) Program.

S662 -- This assignment is for common carrier service provided in a nongovernment domestic satellite system. The specific frequency and satellite is dependent on the common carrier selected to provide the service.

S664 -- This assignment shall expire on termination of the satellite system STATSIONAR (USSR).

S665 -- This assignment is in the INMARSAT space system if this assignment is for a transportable land-based or aeronautical INMARSAT terminal, it is subject to coordination with the Common Carrier Bureau of the FCC. This coordination will be conducted by the COMSAT Corporation in accordance with Annex E, paragraph 3.1.3 of the NTIA Manual.

S666 -- This assignment is in support of Space Project NATO IV.

S668 -- This assignment supports NASA Space Program Tethered Satellite System (TTS).

S669 -- This assignment supports the Volunteers in Technical Assistance (VITA) PACSAT space system.

S670 -- Nongovernment testing of future INTELSAT satellites.

S671 -- This assignment supports the Orbital Sciences Corporation DATASAT Space System.

S673 -- This assignment supports NASA Space Program Cosmic Background Explorer (COBE) Satellite.

S674 -- This assignment supports NASA Space Program Atmospheric Research Satellite (UARS).

S675 -- This assignment supports NASA Space Program Gamma Ray Observatory (GRO).

S676 -- This assignment supports NASA Space Program Advanced Communications Technology Satellite (ACTS).

S677 -- This assignment supports NASA Space Program Astronomical Shuttle Pallet Satellite (ASTRO-SPAS).

S678 -- This frequency supports AF/DoE Space Project ALEXIS.

S679 -- This assignment supports NASA Space Program Wideband Data Collection System.

S680 -- This frequency supports Commerce project Pan-Pacific Educational and Cultural Experiments by Satellite (PEACESAT).

S681 -- This assignment supports NASA Extra-Vehicular Activity UHF Communications Subsystem.

S682 -- This assignment supports NASA Space Program Aeroassist Flight Experiment (AFE).

S683 -- This assignment supports NASA TOPEX/Poseidon (TOPO) Mission.

S684 -- This assignment supports NASA Space Program Solar Anomalous and Magnetospheric Particle Explorer (SAMPEX) in the Small Explorer (SMEX) project.

S685 -- This assignment supports NASA Space Program Wake Shield Facility (WSF).

S686 -- This assignment supports NASA Explorer Platform (EP).

S687 -- This assignment supports NASA Tether Dynamics Explorer/Tethered Atmospheric Probe (TDE/TAP).

S688 -- This assignment supports the Soviet POTOK I space system.

S689 -- This assignment supports NASA Mars Observer Program.

S690 -- This assignment supports the LIGHTSAT Satellite System.

S691 -- This assignment supports NASA Transfer Orbit Stage (TOS).

S692 -- This assignment supports Motorola Satellite Communications, Inc.'s IRIDIUM space system.

S693 -- This assignment supports the NASA Telemedicine 18-Month Demonstration Project.

S694 -- This assignment supports NASA Commercial Experiment Transporter (COMET).

S695 -- This assignment supports Orbiter-ACTS Flight Experiment (O-AFE).

S696 -- This assignment supports NASA Tropical Rainfall Measurement Mission (TRMM).

S697 -- This assignment supports the Deployable Seismic Verification System (DSVS).

S698 -- This assignment will expire upon completion of the Space Project NATO IV.

S699 -- This assignment supports NASA RTEAM Hitchhiker.

S700 -- This assignment supports NASA Sea Star Ocean Color Project.

S701 -- This assignment supports NASA Energy Transient Experiment (HETE).

S702 -- This assignment supports experiments with the satellite system S/80-T (French).

S703 -- This assignment supports the NASA Summer Undergraduate Research Fellowship Satellite I and II (SURFSAT).

S704 -- This assignment supports the Interferometrics, Inc. Space System.

S705 -- This assignment supports the NASA NEXT SCATTEROMETER (NEXSCAT).

S706 -- This assignment supports the NASA Space Radar Laboratory I (SRL-1).

S707 -- This assignment supports the Germany SAFIR system.

S708 -- This assignment supports the NASA Total Ozone Monitoring Spectrometer Earth Probe (TOMS-EP).

S709 -- This assignment supports the NASA MicroLab-1 mission.

S711 -- This assignment supports the NASA "Shuttle/MIR" Communications System.

S712 -- This assignment supports DoE proliferation detection and environmental monitoring satellite program.

S713 -- This assignment supports the NASA Fast Auroral Snapshot Explorer (FAST).

S714 -- This assignment supports the NASA Submillimeter Wave Astronomy Satellite (SWAS).

S715 -- This assignment supports the NASA International Solar Terrestrial Program (ISTP) Interplanetary Physics Laboratory WIND.

S716 -- This assignment shall expire upon completion of the NASA Global Learning and Observations to Benefit the Environment (GLOBE) Program Communications System using the Tracking and Data Relay Satellite System (TDRSS).

S717 -- This assignment supports the NASA Earth Observing System AM (EOS).

S718 -- This assignment supports the NASA Mobile SatCom Demonstration using the Tracking and Data Relay Satellite System (MOST).

S719 -- This assignment supports the NASA Advanced Composition Explorer (ACE).

S720 -- This assignment supports the NASA Near Earth Asteroid Rendezvous (NEAR).

S721 -- This assignment supports the NASA MARS PATHFINDER Satellite System.

S722 -- This assignment supports the NASA CASSINI Satellite System.

S723 -- This assignment supports the NASA Advanced X-Ray Astrophysics Facility-Imaging (AXCAF-1) Satellite System.

S724 -- This assignment is for commercial service using the Russian LOUTCH WSDRN Satellite.

S725 -- This assignment is in support of the Small Spacecraft Technology Initiative (SSTI) CLARK Satellite.

S726 -- This assignment supports the NASA X-Ray Timing Explorer (XTE).

S727 -- This assignment is in support of the HEALTHSAT-II Satellite.

Attachment 3

GUIDE FOR STANDARD FREQUENCY ACTION FORMAT

A3.1. For each item, the first entry after the data title in parenthesis indicates the maximum number of characters allowed. The next entry in parenthesis indicates if the data item is either single (S) or multiple (M) entry.

A3.1.1. ADMINISTRATIVE DATA:

Item 005 Security Classification (2,6) (S)

Enter the overall classification and appropriate special handling code for this part of the frequency action or assignment. Enter special handling codes for actions involving operations in other nations, and for other actions as appropriate.

Classification:

U - UNCLASSIFIED

C - CONFIDENTIAL

S - SECRET

Special Handling:

B - Releasable to host nation and NATO only.

E - Exempt from Freedom of Information Act: Handle as "For Official Use Only".

F - Not releasable to foreign nationals.

H - Releasable to host nation only.

J - Contingency assignment. Has unified commander comments only. Not releasable to foreign nationals unless formally coordinated.

K - Permanent assignment. Available for contingency use within theater after coordination and approval by commander of unified command. Releasable to host nations.

L - Air Force limited distribution.

N - Releasable to NATO only.

P - Proprietary.

Q - Proprietary within limited distribution.

R - Restricted data.

W - Formerly restricted data.

X - Not releasable to foreign nationals with limited distribution.

Z - Releasable to NATO with limited distribution.

For SECRET or CONFIDENTIAL records, follow the classification code with a comma and one of the following codes:

DEOADR - Declassify on: Originating Agency Determination Required. The use of DEOADR in a record requires an entry of "CLF" in Item 503.

DEYYMM - Declassify on year and month (last day of month is assumed). If the declassification date set at the time of the original classification action is to be extended beyond ten years, the an entry of "CLF" is required in Item 503.

Examples: 005. S, DEOADR

005. CH, DE9912

005. U

DEXnnn - Declassify on: Exempt from automatic declassification (The letter "n" is used to indicate one or more of the following reasons Secret and Confidential records cannot be automatically declassified.) The data entry will be "DEX" followed by one to three numbers in numerical order applicable to the appropriate paragraphs below:

1. Reveal an intelligence source, method, or activity, or a cryptologic system of activity.

2. Reveal information that would assist in the development or use of weapons of mass destruction.

3. Reveal information that would impair the development or use of technology within a United States weapons system.

4. Reveal United States military plans, or national security emergency preparedness plans.

5. Reveal foreign government information.

6. Damage relations between the United States and a foreign government, reveal a confidential source, or seriously undermine diplomatic activities that are reasonably expected to be ongoing for a period greater than 10 years.

7. Impair the ability of responsible United States government officials to protect the President, the Vice President, and other individuals for whom protection services, in the interest of national security, are authorized.

8. Violate a statute, treaty or international agreement.

Examples: 005. SH, DEX1

005. CJ, DEX134

DE25Xn - Delclassify on: Permanent valuable information (as defined by th4e national archivists) is exempt from automatic declasification past 25 years from the date of original classification was established. (The letter "n" is used to indicate the reason a Secret of Confidential record cannot be automatically declassified after 25 years.) The data entry will be "DE25X" followed by a number from the applicable paragraph below. **NOTE:** When the value of "n" is greater than "1" an entry of "CDE" is required in Item 503.

1. Reveal the identity of a confidential human source, or reveal information about the application of an intelligence source or method, or reveal the identity of a human intelligence source that would clearly and demonstrably damage the national security interests of the United States.

2. Reveal information that would assist in the development or use of weapons of mass destruction.

3. Reveal information that would impair United States cryptologic systems or activities.

4. Reveal information that would impair the application of state-of-the-art technology within a United States weapon system.

5. Reveal actual United States military war plans that remain in effect.

6. Reveal information that would seriously and demonstrably impair relations between the United States and a foreign government, or seriously and demonstrably undermine ongoing diplomatic activities of the United States.

	7. Reveal information that would clearly and demonstrably impair the current ability of United States Government officials to protect the President, Vice President, and other officials for whom protection services, in the interest of the national security, are authorized. 8. Reveal information that would seriously and demonstrably impair current national security emergency preparedness plans; or, 9. Violate a statue, treaty, or international agreement. *Example:* 005. SH,DE25X5
Item 006 Security Classification Modification (2,6) (S)	If you must change the record classification, special handling code, declassification, or review instructions, enter the new information in the same format as Item 005. *Examples:* 006. SB,DE9909 006. U
Item 010 Type of Action (1) (S)	Enter one of the following single letter codes describe the type of frequency action: **A** - Use according to paragraph 4.3.6 **D** - Use according to paragraph 4.3.3. **F** - Use according to paragraph 4.3.5. **M** - Use according to paragraph 4.3.2. **N** - Use according to paragraph 4.3.1. **R** - Use according to paragraph 4.3.4. **T** - Use according to paragraph 4.3.7. *Examples:* 010. M 010. D
Item 102 Agency Serial Number (10) (S)	Enter the agency serial number for each frequency action. MAJCOMs assign serial numbers for new actions. For other actions, use the agency serial number in the existing assignment. Enter serial numbers for multiple frequencies as 102A, 102B etc. Enter agency (AAAA) and serial number (NNNN) as AAAANNNN. *Examples:* 102. AF958851 102. PAC860001

Item 103 IRAC Docket Number (8) (M)	A docket number is a reference number assigned by IRAC to frequency applications submitted to the FAS. This is a computer generated output item for IRAC records (Item 144. Y). *Examples:* 103. I9459420 103/2. I9414172
Item 104 Assignment Authority (15) (M)	This item is normally entered by JSC using the DTG, followed by the month and year of the FP, Air Force, CINC, and DoD AFC assignment messages. Example: 104. J1814400595
Item 105 List Serial Number (10) (S)	Enter the list serial number only if the type of action is for a NOTIFICATION. *Example:* 105. AF765330
Item 106 Serial Replaced, Delete Date (10,6) (S)	Use to replace an existing assignment in the FRRS with a NEW or NOTIFICATION action. Enter the agency serial number of the existing assignment followed by the desired deletion date in YYMMDD order. *Example:* 106. AF 950512, 961015
Item 108 Docket Numbers Older Authorizations (35) (M)	Enter up to 35 alphanumeric characters for docket numbers of older authorizations to be retained in a NEW or NOTIFICATION action. Separate multiple entries within the 35-character line by a comma. You may enter authorization dates and serial numbers with the docket number, separated by commas. (Optional Item) *Examples:* 108. I84729 - (Docket only) 108. I73621,5704 - (Docket and date (YYMM)

A3.1.2. FREQUENCY AND EMISSION CHARACTERISTICS. Use the same multiple record identifiers in Items 110, 111, 113, 114, and 115 when station classes, emissions, and powers are different for each frequency band:

Item 110 Frequency(ies) (11-11 or 11(11) (S)

Enter the discrete frequency or frequency band required for the equipment described in the assignment action. Precede the frequency value with a unit indicator. Insert a decimal point only if there is a significant digit to the right of the decimal point. Frequency proposal actions may request any frequency rather than specific ones within a band. Use 110A., 110B., and so forth, to identify more than one specific frequency in the same frequency action.

Unit Indicators:

K - for frequencies less than 29,890 kHz.

M - for frequencies between 29,890 kHz and 100,000 MHz.

G - for frequencies between 100 GHz and 3000 GHz.

T - for frequencies at and above 3 terahertz (THz).

For a frequency band assignment, enter the lower frequency limit followed by a hyphen (-) and the upper frequency limit. Enter excluded frequency bands in Item 111. For SSB suppressed or reduced carrier assignments, enter the reference frequency in parentheses following the assigned frequency.

Examples: 110. K8958 -(Requests a specific frequency)

110. M9345-9465 - (Requests a frequency band)

110. K6737.5(6736) - (Requests a specific SSB frequency)

110. Two frequencies in band M138-144 - (Requests any two frequencies within the band 138-144 MHz)

110A. M6737

110B. M6885 (Requests two specific frequencies)

Item 111 Excluded Frequency Band (23) (M)

Enter the frequency band you want to exclude from the frequency band in Item 110. Separate multiple frequency bands by a slant bar (/). Enter unit indicator ahead of the lower limit value only.

Example: 111. M960-1770/M2200-2400

Item 112 Frequency Separation Criteria (35) (S)

Required for CINCEUR, optional for all others. Enter the required frequency separation (in MHz) between different radio sets operated at one location. For transmitter powers less than 24.7 dBw (dB referred to 1 watt)(300 watts), enter 0.5 MHz. For transmitter powers more than 24.7 dBw (300 watts), enter 2.0 MHz. For radio relay sites where different transmitter to transmitter (TX/TX) or transmitter to receiver (TX/RX) frequency separations apply, enter the separation type followed by the required separation.

Examples: 112. 0.5 MHz

112. 2.0 MHz

Item 113 Station Class (4) (M)

Enter standard station class symbols (see Attachment 2, paragraph A2.3.1). Include the suffix (R) if a fixed or mobile station is used as a repeater. Separate multiple entries with a slant bar (/). (Items 113, 114, and 115 are interrelated. Entries in each of these Items must correspond to the entries in the other items.)

Examples: 113. FX

113. FX/FA/FC

Item 114 Emission Designator (11) (M)

Enter the necessary bandwidth and emission symbols (see Attachment 2, paragraph 2.5.1). Enter the necessary bandwidth as a maximum of five numerals and one unit designator. The unit designator occupies the position of the decimal point (maximum of two decimal positions). The emission symbols consist of three mandatory and two optional symbols.

Unit Designators:

H - if the bandwidth is less than 1000 Hz.

K - if the bandwidth is at least 1 kHz but less than 1000 kHz.

M - if the bandwidth is at least 1 MHz but less than 1000 MHz.

G - if the bandwidth is 1 GHz or greater.

Do not include doppler shift in the frequency tolerance or bandwidth of the emission. When Doppler shift is significant, enter it in Item 520.

Examples: 114. 3K00J3E

114. 1K24F1B/3K00J7B

Item 115 Transmitter Power (9) (M)

Enter the power supplied to the antenna transmission line as a maximum of fivedecimal places preceded by a unitdesignator.

Unit Designators:

W - if power is less than 1000 watts.

K - if power is at least 1 kW but less than 1000 kW.

M - if power is at least 1 megawatt (MW) but less than 1000 MW.

G - if power is 1 gigawatt (GW) or greater.

- Use carrier power (pZ) for A3E sound broadcasting in the broadcasting service.

- Use mean power (pY) for other amplitude modulated emissions using unkeyed full carrier and for all frequency modulated emissions.

- Use PEP (pX) for all other emissions, including C3F television video.

Examples: 115. K1.5

115. K2.5/K1.5/K1

Item 116 Power Type (1) (M)

Required only for CINCEUR; optional for all others. Enter the transmitter power typecode for each power given in Item 115.

Power Type Codes:

C - Carrier power.

M - Mean power.

P - Peak envelope power.

Example: 116. P

A3.1.3. TIME AND DATE INFORMATION:

Item 130 Time (4 or 1(4) (S)

Enter the normal period of time during which the frequency will be used:

1 - Regularly, not limited to work week.

2 - Regularly, work week only (0600-1800 hours, Monday-Friday).

3 - Occasionally, not limited to work week.

4 - Occasionally, work week only (0600-1800 hours, Monday-Friday).

Add one of the following symbols for stations in the fixed service below 29980 kHz:

HX - Intermittent service throughout the 24 hour day or no specified service working hours.

HN - Night service only.

HJ - Day service

H24 - Continuous 24-hour service.

HT - Transition period service. Enter as a four-digit number in parenthesis, the actual time per period of operation during the 24-hour day in universal Greenwich time (UGT). The first two digits are the nearest whole hour of start time, and the last two digits are the nearest whole hour of end time. Do not use this symbol for CINCEUR assignments.

Examples: 130. 1

130. 1H24

130. 4(1013)

Item 131 Percent Time (2) (S)

Required for CINCEUR assignments, optional for all others. Enter the percentage of use during the scheduled hours of operation.

Example: 131. 50

Item 140 Required Date (6) (S)

Enter the year, month, and day (YYMMDD) the assignment or modification action is needed. For exercise or temporary assignments, enter the date the frequencies are needed for operational use.

Example: 140. 960615

Item 141 Expiration Date (6) (S)

Enter the year, month, and day (YYMMDD) when use of the assignment will end. Use this item for permanent assignments of less than five years and for temporary assignments of less than 90 days.

Example: 141. 961215

Item 142 Review Date (6) (S)

Enter the year, month, and day (YYMMDD) if a review is desired in less than five years. Computer-generated as five years from date of assignment if left blank. **NOTE:** AFFMA automatically deletes Air Force records that are more than eight years old (three years past the five year review date).

Example: 142. 951215

Item 144 Record Indicator (1) (S)

Enter one of the following codes on all frequency actions.

Y - action to process through IRAC.

U - action inside the US&P, and not processed through IRAC.

O - action outside the US&P, and not processed through the IRAC.

N - action on an existing IRAC assignment, but not processed through the IRAC.

Example: 144. Y

Item 145 IFRB Registration (1,20) (S)

Enter the IFRB registration code when applicable. Used only by AFFMA and CINCs.

R - accepted and registered by the IFRB.

U - notified to the IFRB but not accepted for registration.

I - registered by the IFRB on an insistence basis.

O - not notified to the IFRB.

P - pending notification to the IFRB.

M - registered with the IFRB but needs modification.

Y - IFRB registration required.

Example: 145. R

Item 146 DCS Trunk ID (6) (M)

Enter the DCS trunk indicator when assigned by DISA. Used only by AFFMA and CINCs.

Example: 146. GBCSXX

Item 147 Joint Agencies (4) (M)

For a joint agency application (Item 200=JNTSVC), enter the abbreviation of the agencies (maximum of three). Enter the agency primarily responsible for managing the assignment as the first joint agency. Enter "H" for unidentified agencies. Use the slant bar delimiter (/) to separate multiple agencies.

Examples: 147. N/NASA/AF

147. H

Item 151 Coordination Indicator (1) (S)

Enter "C" for Canadian, "M" for Mexican, or "B" for both when the action has been coordinated with these governments. For USEUCOM assignments, enter "M" for those coordinated with the Allied Radio Frequency Agency (ARFA) for inclusion in the Master Radio Frequency List (MRFL). Enter "H" for actions coordinated with host nation, or "B" when coordinated with both. Enter "D" for Canadian records in the coordination zone near the U.S. borders that are coordinated through NITA with FAS member agencies. Enter "F" for those coordinated with FAA. Enter "J" for those records coordinated through DoD's and JCS. Enter "U" for no indication of coordination. Used only by AFFMA or CINCs.

Examples: 151. C

151. B

Item 152 Coordination Data (1,35) (M)

Enter comments resulting from FAS Secretary coordination with Canada and/or Mexico. For New assignments being created from existing records (serial replaced actions), enter C (for Canada) or M (for Mexico) followed by a comma and the comments previously coordinated by the FAS Secretary.

Example: 152. M,780029,NHIA

A3.1.4. ORGANIZATIONAL INFORMATION. The 200 series items identify the user responsible for the assignment, the frequency management chain, and organizations with an area interest in the assignment (see Attachment 2, paragraph A2.2.1 for standard entries):

Item 200 Agency (6) (S)

Enter one of the following: "USAF" for Air Force operations or "JNTSVC" for Air Force operations requiring a joint frequency assignment (complete Item 147).

Examples: 200. USAF

200. JNTSVC

Item 201 Unified Command (8) (M)

Enter the unified command for the area where the assignment will be used. Separate multiple entries by a slant bar (/).

Examples: 201. CINCPAC

	201. CINCEUR/JFMOLANT
Item 202 Unified Command Service (8) (M)	Enter the service-level organization within the unified command area that is responsible for managing the assignment. Air Force units enter the MAJCOM of the host installation. *Examples:* 202. PACAF 202. USAFE
Item 204 Command (18) (S)	Enter the command code for the MAJCOM frequency management level subordinate to the responsible agency (Item 200) for the assignment. *Examples:* 204. ACC 204. AFMC
Item 205 Subcommand (18) (S)	Enter the frequency management level between the command (Item 204) and installation frequency manager (Item 206), when it exists. If there is no intermediate command, enter the same command code as in Item 204. *Examples:* 205. 5AF 205. ESC
Item 206 Installation Frequency Manager (18) (S)	Enter the name of the installation where the FMO responsible for the assignment is located. If there is no FMO at that level, enter the same command code that is entered in either Item 205 or Item 204, in that order. *Examples:* 206. LANGLEY 206. HANSCOM
Item 207 Operating Unit (18) (M)	Enter the name or designation of the organization using the frequency assignment. Use only the unit abbreviations found in Air Force Directory (AFDIR) 37-135, *Air Force Address Directory* (to be converted to AFDIR 33-335). Air Force office symbols are optional. *Examples:* 207. 89CG 207. SCX
Item 208 User Net/Code (6) (M)	Enter special codes when directed by AFFMA. Attachment 2, paragraph A2.6.1 contains a list of authorized codes for Air Force use. *Examples:* 208. A2ACOM 208. CAP

Item 209 Area AFC/DoD AFC/Other

Enter the DoD AFC, CINC, or Organization Service Area FMO, (18) (M)or other organization not provided in Items 200-208 that have responsibility or interest in the assignment. If Item 301 equals US, USA or USP respectively, enter only the following DoD AFC codes: AFCUS, AFCUSA, or AFCUSP respectively. Separate multiple entries with a slant bar (/).

Examples: 209. NAFC

209. GAFC/EAFC

209. AFCUSP

A3.1.5. TRANSMITTER LOCATION, EQUIPMENT, AND ANTENNA INFORMATION. Use a separate frequency action for each transmitter location. Location Data:

Item 300 State/Country (4) (S)

Enter the name or abbreviation of the state, country, or area in which the transmitting antenna is located (see Attachment 2, paragraph A2.1 for standard entries).

Examples: 300. CA

300. KOR

300. SPCE

Item 301 Antenna Location (24) (S)

Enter the name of the physical location where the transmitting antenna is actually located such as the city (DALLAS), geographical feature (MT HEBO), or military installation (MAXWELL). Use military installation names as applicable; however, do not include the abbreviations AFB or AFS. In certain cases such as missiles, aircraft, ships, and geostationary or nongeostationary satellites, use a nongeographical identifier (see Attachment 2, paragraph A2.1.5 for standard entries).

Examples: 301. ONIZUKA

301. OSAN

301. NONGEOSTATIONARY

Item 303 Antenna Coordinates (15) (S)	Enter the geographical coordinates: degrees (D), minutes (M), seconds (S), and hemisphere (H) for the antenna location. Use leading zeros as appropriate for degrees, minutes, and seconds. Use N for north, S for south, E for east, and W for west. Format is DDMMSSHDDDMMSSH with the latitude given first. Coordinates to the nearest second are mandatory for fixed, permanently installed antenna sites. Do not use "XX" or "00" instead of correct information. Leave both latitude and longitude blank for nongeostationary satellites or if you cannot apply coordinates to the site in Item 301. Enter 000000N as the latitude along with the longitude for geostationary satellites. *Examples:* 303. 372423N1220133W 303. 000000N0925300W
Item 304 Callsign (8) (S)	Enter the international callsign or NAVAID identifier assigned to the transmitting station, if applicable. Do not enter local voice or tactical callsigns. *Example:* 304. WUH55
Item 306 Authorized Radius (5) (S)	If the transmitting station is portable, mobile, or transportable, enter the radius (in kilometers) of operation around the coordinates given in Item 303. If the radius applies only to the transmitter, add the suffix "T". If the radius applies to both the transmitter and receiver, add the suffix "B". When a fixed station and its associated mobile stations will transmit and receive on the same frequency, leave this item blank and enter radius of operation in Item 406. *Examples:* 306. 30T 306. 150B

A3.1.6. SPACE STATION DATA. Items 315 through 321 are for transmitter space station satellites only. Leave these items blank for geostationary satellites:

Item 315 Equatorial Inclination Angle (4) (S)	Enter the equatorial inclination angle in degrees. *Example:* 315. 76.5

Item 316 Apogee (5) (S)	Enter the point in the orbit of a nongeostationary satellite where it is farthest from the Earth (Apogee). Enter the satellite's apogee in kilometers. *Example:* 316. 23500
Item 317 Perigee (5) (S)	Enter the point in the orbit of a nongeostationary satellite where it is nearest to the Earth (Perigee). Enter the satellite's perigee in kilometers. *Example:* 317. 200
Item 318 Period of Orbit (7) (S)	Enter the time it takes for a nongeostationarytransmitter satellite to make one complete orbit. If the period is less than 24 hours, give the time in hours followed by the letter "H". If the period is 24 hours or more, give the time in days followed by the letter "D". Examples: 318. 12.83H (Indicates 12 and 83/100 of an hour) 318. 2.6D (Indicates 2 and 6/10 of a day)
Item 319 Number of Satellites (2) (S)	Enter the number of nongeostationary satellite transmitters in the system having similar orbital characteristics. *Example:* 319. 3
Item 321 Power Density (4) (S)	For Earth or space stations, or terrestrial stations (including experimental) which employ Earth or space station techniques, enter the maximum power density per Hz (in dBW) supplied to the antenna. For frequencies below 15 GHz, the power shall be averaged over the worst 5 kHz band; for frequencies 15 GHz and above, the power shall be averaged over the worst 1 Mhz band. The worst 4 kHz and 1 MHz bands are defined as those having the highest power density within the assigned emission bandwidth. For negative values, precede the value with a minus sign (-). *Examples:* 321. 8 321. -5

A3.1.7. TRANSMITTER EQUIPMENT DATA. Enter only the data for the fixed transmitter when both fixed and mobile stations (such as FA/MA or FB/ML) are used:

Item 340 Equipment Nomenclature (1,18) (S)

Enter the equipment type code, a comma, then the component or system nomenclature. Separate multiple entries by a slant bar (/).

Equipment Type Codes:

G - Government nomenclature.

C - Commercial model number.

U - Unassigned nomenclature.

For government equipment nomenclature, enter the standard military nomenclature. If a government equipment nomenclature is not available, enter the standard abbreviated manufacturer's name, followed by the manufacturer's commercial model number.

If a standard manufacturer's abbreviation is not available, enter the full name of the manufacturer in Item 801.

If the transmitter does not have a government nomenclature or commercial model number, enter the abbreviated manufacturer's name and a short description of the equipment in Item 801.

Examples: 340. G,AN/ARC115

340. C,MOTH23FFN1130E

340. U, AJAX RADAR

801. AJAX COMM INC,

801. EXPERIMENTAL RADAR

Item 341 Number of Equipment, (5,18) (S)

Enter the number of mobile or transportable System Name stations (transmitting and receiving), a comma, then the system name. An entry in this item is mandatory for all land mobile RF assignments above 29,890 kHz and optional for all others. Use either the exact number of stations or one of the following ranges:

Within the range:	***Enter the number:***
1-10	10
11-30	30
31-100	100
101-300	300
301-1,000	1,000
1,001-3,000	3,000
3,001-10,000	10,000

	Above 10,000 Nearest 10,000 If you enter the exact number of stations, and it is one of the above ranges, add one to the number to distinguish it from those ranges (for example, enter 3001 for a system with exactly 3000 stations). System names are determined by the applicant. If necessary, system names are abbreviated to no longer than 18 characters. The words NET or SYSTEM, or the letters N or S, may be used as the system name for each assignment that represents an entire system. *Examples:* 341. 45, REGION 2 341. 7,NET 341. 30,SYSTEM 341. 3001,S
Item 343 Equipment Allocation Status (7) (M)	Enter the equipment allocation number assigned to the equipment or system (Item 340) by the J/F 12 Working Group. A J/F 12 number is mandatory for all equipment except that exempted by the FP (see Chapter 5). Enter only the four-digit allocation number, including a revision number if appropriate. A slant bar is acceptable in the fifth position when followed by the revision number. *Examples:* 343. 1269 343. 0337/2

A3.1.8. PULSED AND NONPULSED EMITTER DATA:

Item 345. Radar Tunability (2) (M)	Enter one of the following symbols for all radars: **FA** - Frequency-agile radar which operates on various frequencies within a band in either a specified or random mode. **FV** - Radar that operates on a discrete frequency determined by the characteristics of a fixed magnetron or similar radio frequency generating device. **FX** - Radar that operates on a single discrete frequency. **TC** - Radar capable of tuning to any frequency within the requested band.

TS - Radar capable of tuning across the authorized or requested band in discrete steps or increments including crystal control.

Examples: 345. FX

345. TS

Item 346 Pulse Duration (PD) (9 or 9-9) (M)

Enter the numeric value(s) for the characteristic PD of each pulsed equipment at the half-power (3dB) points. Express PD in microseconds for values up to and including 999 microseconds. Express PD in milliseconds for values of 1 millisecond or more. Add the letter M to the end of numeric values when expressed in milliseconds. Fractions are shown to the nearest tenth by using a decimal point. Discrete values or range values are entered of each equipment capable of continuously variable PDs over wide range(s). Separate the lower and upper values of each range by a dash (-). Separate each discrete PD or range values with a slant bar (/).

Examples: 346. 1/3/5.6

346. 2M/6M

346. 1M-25M

Item 347. PRR (9 or 9-9) (M)

Enter the numeric value for the PRR of the equipment. PRR will be indicated in PPS for values up to and including 999 PPS. Express PRR in thousands of PPS for values of 1000 PPS and above by adding the letter K after the numeric value. Discrete values or range values are entered for each equipment capable of continuously variable PRRs over wide range(s). Separate the upper and lower values of each range with a dash (-). Separate each discrete PRR or range values with slant bar (/).

Examples: 347. 500/750/1K/200-999

347. 250

Item 348. Intermediate Frequency (11) (S)

Required for CINCEUR, optional for all others. Enter the IF of the transmitter. Use one of the following prefixes:

K - if frequency is less than 30 MHz.

M - if frequency is at least 30 MHz but less than 100 GHz.

G - if frequency is at least 100 GHz but less than 3 THz.

T - if frequency is 3 THz or more.

Example: 348. M450

Item 349 Side Lobe Suppression (1) (S)

Required for CINCEUR, optional for all others. Enter one of the following codes for all radar assignments:

Y - Side Lobe Suppressed.

N - Side Lobe Not Suppressed.

Examples: 349. Y

349. N

A3.1.9. TRANSMITTER ANTENNA DATA. Enter only fixed antenna data when both fixed and mobile stations are used. Enter the data for the antenna most frequently used when there is more than one antenna. (**NOTE:** Items may be omitted for experimental or mobile terrestrial stations transmitting at 29,890 kHz and above.)

Item 354. Antenna Name (10) (S)

Enter the generic name for the type of antenna associated with the transmitter.

Examples: 354. WHIP

354. PARABOLIC

Item 356. Antenna Structure Height (3) (S)

Required for CINCEUR, optional for all others. Enter in meters the overall height of the antenna structure above ground level. This item does not apply to mobile services.

Example: 356. 17

Item 357. Antenna Gain (4) (M)

Enter the antenna gain (in dB with reference to an isotropic source) in the direction of maximum radiation. All gain values must be rounded off to the nearest whole number. For a negative gain (Earth and space stations only), enter a hyphen (-) before the value of gain. An antenna gain entry is required for:

Terrestrial stations below 29,890 kHz, in the fixed (FX) and aeronautical fixed (AX) station class in the 3000 to 29,850 kHz band.

Experimental and mobile stations at or above 29,890 kHz.

Earth and space stations with higher gain antennas.

Examples: 357. 15

357. -10

Item 358. Antenna Elevation (5) (S)	Enter the site's terrain elevation, in meters above mean sea level (MSL), at the base of a fixed station's transmitter antenna.. If the antenna is installed on a structure, such as a tower or building, the site elevation is specified as the ground elevation at the base of the structure. Leave item blank for mobile or transportable stations. *Example:* 358. 150
Item 359. Antenna Feedpoint Height (5) (S)	Enter the distance (in meters) between the transmitter antenna's feedpoint and the surrounding terrain. For airborne satellite terminals, enter the maximum operational altitude of the aircraft in meters above MSL. Leave item blank for mobile or transportable earth stations. *Examples:* 359. 38 359. 10688
Item 360. Antenna Horizontal Beamwidth (4) (M)	Enter the beamwidth for a transmitter antenna(including experimental) assigned to a space, earth, or terrestrial station employing earth or space station techniques. Express beamwidth in degrees at the half-power (3bB) points. A fractional beamwidth up to one digit to the right of the decimal point is entered. Precede the decimal point with a zero. *Examples:* 360. 12 360. 0.5 360. 17.2
Item 361. Antenna Vertical Beamwidth (3) (S)	Required for CINCEUR, optional for all others. Enter the half-power vertical beamwidth in degrees measured between the 3 dB points. *Example:* 361. 23

Item 362. Antenna Orientation (Azimuth) (3,3 or 3,3-3 or 3,3/3) (M)

Enter the physical direction or movement of the transmitter antenna. This item applies to all earth, space, and terrestrial stations. A second entry indicating the azimuth angle of the antenna's main beam may be given. This second entry, given in degrees clockwise from true north, applies only to earth stations or terrestrial stations employing earth station techniques. For directional antenna's orientated in a fixed direction, enter the three digit number indicating the azimuth of the main antenna lobe in degrees east of true north or one of the antenna orientation codes below:

ND - For nondirectional antenna.

R - For antennas t rotating through a full 360 degrees azimuth while operating.

S - For directional antennas that operate in a fixed direction but are steerable in the horizontal plane.

SSH - For antennas scanning horizontally through a limited sector.

SSV - For vertical scanning (nodding) antennas.

T - For tracking antennas capable of continuous observance of a moving station or object.

Examples: 362. 215

362. ND

Earth Stations - Enter the antenna's minimum operating elevation in degrees, prefixed by the letter V. If the Earth station is fixed and is communicating with a single geostationary satellite, follow the vertical data with a comma and the azimuth in degrees from true north from the Earth station to the satellite.

If the Earth station is fixed and is communicating with two geostationary satellites, follow the vertical data with a comma and the azimuths to the satellites separated by slant bars (/).

If the Earth station is fixed and is communicating with more than two geostationary satellites or with nongeostationary satellites, follow the vertical data with a comma and the range of azimuths used by the Earth station. Use a hyphen (-) to separate the minimum and maximum azimuths.

Examples: 362. V09,133

362. V10,132/150

362. V12,122-160

Space Stations - Enter either NB for narrow beam or EC for earth coverage antennas.

Example: 362. EC

Item 363. Antenna Polarization (1) (M)

Enter the polarization of the electromagnetic radiation from the antenna using one of the codes below.

Polarization Codes:

A - Elliptic, Left

B - Elliptic, Right

D - Rotating

E - Elliptical

F - 45-degree

H - Fixed horizontal

J - Linear

L - Left-hand circular

M - Oblique Angled, Left

N - Oblique Angled, Right

O - Oblique Angled, Crossed

R - Right-hand circular

S - Horizontal and vertical

T - Right- and left-hand circular

V - Fixed vertical

X - Other/unknown (explain in Item 520)

Examples: 363. V

363. L

A3.1.10. RECEIVER LOCATION, EQUIPMENT, AND ANTENNA INFORMATION. Enter data for multiple receiver locations in the same sequence throughout. Designate corresponding data as R01 or R02, and so forth. (*Example:* 401. TAMPA,R01 MIAMI,R02 shows receiver location number one in Tampa and receiver location number two in Miami.)

A3.1.10.1. LOCATION DATA:

Item 400. State/Country (4) (M)

Enter the name or abbreviation of the state, country, or area in which the receiving antenna is located (see Attachment 2, paragraph A2.1. for standard entries).

Examples: 400. CO

400. G

400. SPCE

Item 401. Antenna Location (24) (M)

Enter the name of the physical location where the receiving antenna is actually located such as the city (DENVER), geographical feature (LAKE ERIE), or military installation (MACDILL). Use military installation names as applicable; however, do not include the abbreviations AFB or AFS. In certain cases such as missiles, aircraft, ships, and geostationary or nongeostationary satellites use a nongeographical identifier (see Attachment 2, paragraph A2.1.5. for standard entries).

Examples: 401. NASHVILLE

401. NONGEOSTATIONARY

Item 403. Antenna Coordinates (15) (M)

Enter the latitude and longitude (expressed in degrees [D], minutes [M], seconds [S]) for the receiver antenna locations. Use leading zeros as appropriate for degrees, minutes, and seconds.

Use N for north, S for south, E for east, and W for west. Format is DMMSSHDDMMSSH with latitude given first. Coordinates to the nearest second are mandatory for fixed, permanently installed antenna sites. Do not use "XX" or "00" instead of correct information.

Leave both latitude and longitude blank for nongeostationary satellites or if the site in Item 301 is an area for which you cannot apply coordinates.

Enter 000000N as the latitude along with the longitude for geostationary satellites.

Examples: 403. 214216N1171039W

403. 000000N0325012W

Item 404. Callsign (8) (M)	Enter the international callsign or NAVAID identifier assigned to the receiving station, if applicable. Do not enter local voice or tactical callsigns. *Example:* 404. WUH55
Item 406. Authorized Radius (4) (M)	If the receiving station is portable, mobile, or transportable, enter the radius (in kilometers) of operation around the coordinates given in Item 403. When both fixed and mobile stations will operate on the same frequency, an entry in this item indicates the mobile station may transmit within this area. *Example:* 406. 80
Item 407. Path Length (5) (M)	Enter the distance (in kilometers) between terrestrial, transmitter and receiver stations. Used only for fixed service facilities operating between 4 and 30 MHz.
Item 408. Repeater Indicator (1) (M)	Enter the letter "R" for each receiver location that is primarily used as a repeater in the fixed and mobile services between 29850 kHz and 420 MHz.

A3.1.11. SPACE STATION DATA. Items 415 through 419 are for nongeostationary satellites only:

Item 415. Equatorial Inclination Angle (4) (M)	Indicates the angle at which the nongeostationary satellite's orbit crosses the equator. Enter the equatorial inclination angle in degrees, using a decimal point for fractional degrees. *Example:* 415. 76.5
Item 416. Apogee (5) (M)	Indicates the point in the orbit of a nongeostationary satellite at which it is farthest from the Earth. Enter the satellite's apogee in kilometers. *Example:* 416. 690
Item 417. Perigee (5) (M)	Indicates the point in the orbit of a nongeostationary satellite at which it is nearest to the Earth. Enter the satellite's perigee in kilometers. *Example:* 417. 92

Item 418. Period of Orbit (7) (M)

Indicates the time it takes for a nongeostationary satellite to make one complete orbit. Enter the data using a decimal point for a fractional unit. If the period is less than 24 hours, enter the period in hours followed by the letter H. If the period is 24 hours or more, enter the period in days followed by the letter D.

Examples: 418. 12.83H

418. 2.6D

Item 419. Number of Satellites (2) (M)

Indicates the number of nongeostationary satellites in a system having similar orbital characteristics. Enter the number of nongeostationary satellites in the system.

Example: 419. 3

A3.1.12. RECEIVER EQUIPMENT DATA. Enter only the data for the fixed receiver when both fixed and mobile stations (such as FA/MA or FB/ML) are used. Only one receiver equipment is authorized per assignment record.

Item 440. Equipment Nomenclature (1,18) (M)

Identifies the type of equipment (Government, commercial, or unassigned) and either the standard military nomenclature or the commercial make and model number of the equipment at each receiver location. Enter the equipment type code, a comma, then the component or system nomenclature.

Equipment Type Codes:

G - Government nomenclature.

C - Commercial model number.

U - Unassigned nomenclature.

For government equipment nomenclature, enter the standard military nomenclature.

If a government equipment nomenclature is not available, enter the standard abbreviated manufacturer's name followed by the manufacturer's commercial model number.

If a standard manufacturer's abbreviation is not available, enter the full name of the manufacturer in Item 801.

If the receiver does not have a government nomenclature or commercial model number, enter the abbreviated manufacturer's name and a short description of the equipment in Item 801.

Examples: 440. G, G,AN/GRC201

440. C,MOTH23FFN1130E

440. U, AJAX RADAR

801. AJAX COMM INC

801. EXPERIMENTAL RADAR

Item 443. Equipment Allocation Status (7) (M)

Indicates the allocation number assigned to the equipment or system by the J/F-12 Working Group. Enter the equipment's J/F-12 allocation number (located on DD Form 1494) if known. Enter only the four-digit allocation number, including a revision number if appropriate. A J/F-12 number is mandatory for all equipment except that exempted by the FP.

Examples: 443. 1269

443. 5079/2

A3.1.13. RECEIVER ANTENNA DATA. Enter only fixed antenna data when both fixed and mobile stations are used. Enter the data for the antenna most frequently used when there is more than one antenna. (**NOTE:** Items may be omitted for experimental or mobile terrestrial stations operating at 29,890 kHz and above.)

Item 454. Antenna Name (10) (M)

Enter the generic name for the type of antenna associated with the receiver.

Examples: 454. WHIP

454. PARABOLIC

Item 456. Antenna Structure Height (3) (S)

Required for CINCEUR, optional for all others. Enter in meters the overall height of the antenna structure above ground level. This item does not apply to mobile services.

Example: 456. 17

Item 457. Antenna Gain (4) (M)

Enter the antenna gain (in dB with reference to an isotropic source) in the direction of maximum radiation. All gain values must be rounded off to the nearest whole number.

Enter a hyphen (-) before the value for negative gains for space and Earth stations. An antenna gain entry is not required if the frequency action is for:

Stations below 29,890 kHz, other than fixed (FX) and aeronautical fixed (AX) stations between 3000 and 29,850 kHz.

	Experimental or mobile terrestrial stations at or above 29,890 kHz. *Examples:* 457. 10 457. -11
Item 458. Antenna Elevation (5) (M)	Enter the site's terrain elevation, in meters above MSL, at the base of a fixed station's receiver antenna. Leave blank for mobile or transportable stations. *Example:* 458. 150
Item 459. Antenna Feedpoint Height (5) (M)	Enter the distance (in meters) between the receiver antenna's feedpoint and the surrounding terrain. For airborne satellite terminals, enter the maximum operational altitude of the aircraft in meters above MSL. Enter a maximum of three digits for an earth station antenna. Leave blank for mobile or transportable stations. *Examples:* 459. 38 459. 10,688
Item 460. Antenna Horizontal Beamwidth (4) (M)	Enter the angular beamwidth for a receiver antenna (including experimental) assigned to a space, earth, or terrestrial station employing earth or space station techniques. Express beamwidth in degrees measured at the half-power (3 dB) points. A fractional beamwidth up to one digit to the right of the decimal point may be entered. Precede the decimal point with a zero. For a space station, the beamwidth of up to three antennas are shown with the respective values separated by a slant bar (/). *Examples:* 460. 0.5 460. 12/20/20 460. 17.2
Item 461. Antenna Vertical Beamwidth (3) (S)	Required for CINCEUR, optional for all others. Enter the half-power vertical beamwidth in degrees - measured between the -3 dB points. *Example:* 461. 23

Item 462. Antenna Orientation (Azimuth) (3,3 or 3,33) (M)

Describe the physical direction or movement of the receiver antenna. This item applies to all earth, space, and terrestrial stations. Enter the azimuth of the main beam of the antenna in degrees clockwise from true north, applies only to earth stations or terrestrial stations. For directional antennas oriented in a fixed direction, enter the three digit azimuth in degrees east of true north or one of the codes below.

Antenna Orientation Codes:

ND - For nondirectional antennas.

R - For antennas rotating through a full 360 degrees azimuth while operating.

S - For directional antennas that operate in a fixed direction but are steerable in the horizontal plane.

SSH - For antennas t scanning horizontally through a limited sector.

SSV - For vertically scanning (nodding) antennas.

T - For tracking antennas capable of continuous observance of a moving station or object.

Examples: 462. 225

462. ND

Earth stations: Enter the antenna's minimum operating elevation in degrees, prefixed by the letter V. If the earth station is fixed and communicating with a single geostationary satellite, follow the vertical data with a comma and the azimuth in degrees from true north from the Earth station to the satellite. If the earth station must communicate with more than one satellite, a separate assignment must be added.

Examples: 462. 215

462. V10,133

462. V09,122-160

Space stations: Enter either NB for narrow beam or EC for earth coverage antennas. In the case of space-to-space transmission, no entry is required.

Example: 462. EC

Item 463. Antenna Polarization (1) (M)	Enter the antenna polarization using one of the codes below. Enter up to three codes for space stations with codes separated by slant bars (/). ***Polarization Codes:*** **A** - Elliptic, left **B** - Elliptic, right **D** - Rotating **E** - Elliptical **F** - 45-degree **H** - Fixed horizontal **J** - Linear **L** - Left-hand circular **M** - Oblique angled, left **N** - Oblique angled, right **O** - Oblique angled, crossed **R** - Right-hand circular **S** - Horizontal and vertical **T** - Right- and left-hand circular **V** - Fixed vertical **X** - Other/unknown (explain in Item 520) *Examples:* 463. V 463. J/F/L

A3.1.14. SPACE SYSTEMS: Use Items 470, 471, and 472 for noise temperature space system data.

Item 470. Space Station Noise Temperature (5) (M)	Enter the space station noise temperature in degrees Kelvin. If more than one antenna is reported, enter the value(s) for each antenna, separated by a slant bar (/). *Examples:* 470. 855 470. 200/350/150
Item 471. Earth Station System Noise Temperature (5) (M)	Enter the Earth receiving station noise temperature in degrees Kelvin. *Example:* 471. 60

Item 472. Equivalent Satellite Link Noise (5) (M)	This item required for each Earth temperature station that receives signals from a geostationary space station using a simple frequency changing transponder. Enter the lowest noise equivalent temperature in degrees Kelvin taking into consideration all satellite links received by the earth station on the assigned frequency. *Example:* 472. 225

A3.1.15. SUPPLEMENTARY DETAILS. Items 500 through 531 are used for data not specifically covered elsewhere. They contain various coded or free text remarks relating to a frequency assignment as a whole or clarifying the authorized area of operations.

Item 500. IRAC Notes. (4) (M)	Enter IRAC note numbers for US&P assignments only. Attachment 2 , paragraph A2.6 contains a listing of IRAC notes. Separate multiple entries by slant bars (/). *Examples:* 500. C004 500. E013 500. L116/S017
Item 501. Notes--Free Text. (35) (M)	(Use in US&P only). Enter minute (M) notes with amplifying data only for IRAC assignments. Format is the M note number followed by a comma and amplifying text. Enter only one M note per data line; however, a single M note may use more than one data line. *Examples:* 501. M005,ROCKVILLE,MD 501. M003,WRC TV/J SMITH
Item 502. Description of Requirement (1440) (S)	Enter a general description of the requirement indicating specific use of the frequency or frequency bands. Enter as many lines of remarks as necessary; however, precede each line with the Item identifier 502. Amplify handling instructions for classified information, including classification of individual items when associated with other items or information. Also include other assignment information such as host nation comments or restrictions, that is entered in the FRRS and is not included with any other SFAF item. Do not duplicate data entered in Item 503 or Item 520. (This item is not processed to IRAC.)

	Example: 502. FREQUENCY TO EXPAND COVERAGE OF LMR FIRE/CRASH NET AT ANDREWS AFB. ITEM 110 IS UNCLASSIFIED WHEN NOT ASSOCIATED WITH ITEMS 300, 301, 340, 346, AND 347.
Item 503. Agency Free Text Comments (35) (M)	(Use in US&P only). Enter agency data which is pertinent to the proposed frequency action and processed through IRAC. Enter up to 35 characters for each line of remarks, preceding each new line with the item identifier 503. (Enter remarks not processed through IRAC in Item 502.) *Example:* 503. ACME ELECTRONIC CORP TO SUPPORT IN DEVELOPMENT OF EXPERIMENTAL TELECOMMAND SYSTEM. Classification Information. In accordance with Executive Order 12958, *Classified National Security Information*, SECRET and CONFIDENTIAL records will contain the following additional data which must be formatted as noted below. Each entry will be placed on a separate line in SFAF Item 503. The lines will follow any other textual information placed in Item 503 as discussed above.
Item 503. Downgrading Instructions DNG (1,8) (S)	This is a two part field. The entry contains DNG followed by a comma, the new classification level, followed by a comma, and the date (YYYYMMDD) the record is to be downgraded from SECRET to CONFIDENTIAL. *Example:* 503. DNG,C,19991105
Item 503. Declassification Date Past 25 Years (35) (S)	This item is required when Item 005 contains CDE DEX25n, where the value of "n" is greater than 1. The data entry will be CDE, followed by the declassification date (YYMMDD). *Example:* 503. CDE,351231 (for Dec 31, 2035)

Item 503. Derivative Classification Source (35) (M)	This is required when the Declassification Information CLFInstructions in Item 005 contain "DEOADR" or when the classification of data is "Derived From" other sources such as classification guides, J-12 documents or operations plans. The data entry will be CLF, followed by the source title, date and publishing organization. (An entry of CLA in Item 503 is not required when CLF is used in Item 503.) Whenever all of the multiple sources are entered, the most restrictive declassification instruction from all of the sources used must be entered in the second part of Item 005. *Examples:* 503. CLF,B-1B SCG, 930815, OC-ALC/LAB 503. CLF,OPLAN 2104, 19921122, CINCPAC 503. CLF,J-12 5502/4, 19870614, USAFFMA In those instances where the original classification authority extends a declassification date in SFAF Item 005 beyond the initial 10 year period, this field is used to identify the date the declassification date was extended, the individual and the individual's agency or organization which approved the extension. This entry is not necessary when the classification is derived from another source and the source is listed in accordance with subparagraph above. *Example:* 503. CLF,051105, CDR CINCPAC
Item 503. Classification Authority CLA (35) (S)	Required when classification information is NOT derived from another document such as a classification guide, J-12 paper or operations plan. (See 503. CLF) Enter the title and organization of the original classification authority. Precede the data with the letters CLA. *Examples:* 503. CLA,CDR, AMC 503. CLA,CDR, AFMC If the ID of the classification authority would reveal additional classified information an entry of "503. CLA,EXCLUDED, 1.7.B" is permitted.

Item 503. Classification Reason CLR (23) (S)	Required when classification information is NOT derived from another document such as a classification guide, J-12 paper or operations plan. Enter the classification reason from the list provided below. The data entry will be "CLR, 1.5" followed by one or more letters in alphabetical order applicable to the appropriate paragraphs below: **A** - Military plans, weapons systems or operations **B** - Foreign government information **C** - Intelligence activities (including special activities), intelligence sources or methods of cryptology **D** - Foreign relations or foreign activities of the United States, including confidential sources **E** - Scientific, technological, or economic matters relating to the national security **F** - United States Government programs for safeguarding nuclear materials or facilities **G** - Vulnerabilities or capabilities of systems, installations, projects or plans relating to national security. *Examples:* 503. CLR, 1.5A 503. CLR, 1.5EG
Item 504. FAS Agenda or outside United States and Possession (OUS&P) Comments (72) (M)	(Use in US&P only.) Enter data to appear in the FAS agenda (ACTF) file and FRRS temporary file. This data does not appear in the permanent GMF or FRRS files. A maximum of five occurrences is allowed. Include comments that are not conditions of the assignment but help clarify why the action is being submitted. *Examples:* 504. MODIFICATION REFLECTS ACTUAL USE 504. 5 YEAR REVIEW UPDATE
Item 505. NATO Pooled Frequency Code Number (5) (M)	Required for CINCEUR and CINCLANT optional for all others. Enter one of the following type special assignment codes for A/G/A and A/A requirements in the 225-400 MHz band. ***Type Special Assignment Codes:*** **B** - A/G/A Requirements **A** - A/A Requirements

P - A/G/A Pool Requirements

Examples: 505. B

505. P

Item 520. Supplemental Details (1200) (S)

(Use in US&P only.) Enter amplifying information to process through IRAC which would aid in processing the frequency action. Enter as many data lines as necessary to give a general description of the assignment action indicating specific use of the frequency or frequency band(s). Include:

Doppler shift, if a significant factor in the system.

General description of requirement, if application is for experimental stations.

Justification for frequency diversity.

Justification for sounders.

Coordination data.

Information required by paragraph 9.8.2, Item 80, of the *NTIA Manual*.

Example: 520. DIVERSITY REQUIRED TO PROVIDE MINIMUM SYSTEM RELIABILITY COORDINATED WITH FAA ASO406

Item 530. Authorized Areas (3,35) (M)

Enter data to describe areas which you cannot describe under authorized mileage radius or authorized states. If the antenna locations (Items 301 or 401) are the names of a state, country, or parts of several contiguous states or countries, enter the locations here (unless Item 531 is used). Enter the identifying code (see below) followed by a comma and the information describing each location. Separate elements with commas.

Identifying Codes:

ART - For transmitting in area shown.

ARR - For receiving in area shown.

ARB - For transmitting and receiving in area shown.

Examples: 530. ART, SWWY,NE UT, NW CO

530/2. ARR, S OF 33N

530. ARB, 39N43N110W111W

530. ART, S OF 40N, E OF 095W

Item 531. Authorized States (3,4) (M)

(Use in US&P only.) Enter included or excluded states whenever the antenna location data (Items 301 or 401) is given as US, USA, or USP for operation within several states. Enter the identifying code (see below) followed by states included or excluded. Separate elements by commas.

Identifying Codes:

LST - For transmitting in the states listed.

LSR - For receiving in the states listed.

LSB - For transmitting and receiving in the states listed.

EST - For transmitting in all states except those listed.

ESR - For receiving in all states except those listed.

ESB - For transmitting and receiving in all states except those listed.

Examples: 531. LST,CA,OR,WA,ID

531. ESR,MD,VA,NC,SC,GA

A3.1.16. OTHER ASSIGNMENT IDENTIFIERS:

Item 701. Frequency Action Officer (3) (S)

Enter the identifying code for the frequency action officer or group responsible for processing the assignment action (see Attachment 2, paragraph A2.6.2).

Examples: 701. T05

701. T17

Item 702. Control/Request Number (15) (S)

Enter the assignment action control number as directed by the responsible agency or CINC. For Air Force, enter the MAJCOM abbreviation (MMMMM) followed by a space, then the two digit year (YY), a dash (-), and annual sequence number (NNNN). Format is MMMMM YY-NNNN.

Examples: 702. ACC 95-0100

702. AFMC 95-1151

Item 704. Type of Service (1) (S)

Required for CINCEUR and CINCLANT units. Enter one of the following circuit type codes:

B - Broadcast

D - Duplex

	H - Semiduplex **L** - Radiolocation **M** - Simultaneous broadcast **N** - Radionavigation **R** - Reception only **S** - Simplex **T** - One directional transmission **X** - Radio-determination **Z** - Simplex net *Example:* 704. N
Item 705. Systems Identifier (35) (S)	Enter the authorized function code that identifies the primary purpose of the frequency assignment (see Attachment 2, paragraph A2.6.3.). *Examples:* 705. FIRE,ALARM 705. COMMANDER,AWACS
Item 707. CINCPAC Complement /ARFA	For Pacific: Enter the CINCPAC function number complement number number used to identify a family grouping of frequencies which have a like or similar use. For Europe: Enter the ARFA function number to specify the operational use of the frequencies. *Examples:* 707. 34100 (CINCPAC) 707. 100/101 (CINCEUR)
Item 710. Host Country Docket Number (12) (M)	Enter the docket number the host (soil) country assigns to the frequency authorization. *Examples:* 710. 2F84-171 (Germany) 710. 2CAZ0193 (ARFA)
Item 711. Aeronautical Service Range and Height (6) (S)	Required for CINCEUR. Enter the service radius and flight level of aeronautical NAVAIDs and ATC assignments for frequencies above 29,890 kHz and low frequency beacons. Enter the service range in nautical miles (using three digits) followed by flight level in thousands of feet (using three digits). *Example:* 711. 250050 (250 miles at 50,000 feet)

Item 715. Transmitter ARFA MRFL Number (6) (S)	Required for CINCEUR, optional for others. Enter the ARFA master record frequency list (MRFL) serial number of the frequency assignment. Leading zeros are required if less than six digits are used. *Examples:* 715. 821234 715. 009361
Item 716. Usage Code (1) (S)	Required for CINCEUR, CINCPAC, and CINCLANT areas, optional for all others. Enter one of the following usage codes: **1** - Wartime circuits required for operation in peacetime (terminals fully equipped with appropriate installation and personnel). **2** - Wartime circuits with a limited capability in peacetime, for exchanging traffic between the planned terminals (equipment and personnel shared with other "2" circuits). **3** - Required for wartime only (equipment is or will be available). **4** - Required for occasional and temporary usage for training exercises or maneuver purposes, and for peacetime emergencies when you cannot use a category above or it does not exist to meet such occasional needs. **5** - Required for the deployment phase of contingency operations. **6** - Required for the employment phase of contingency operations. **7** - Required for peacetime only. **8** - Other. Provide explanation on proposals only. *Examples:* 716. 3 716. 5

A3.1.16.1. ADDITIONAL INFORMATION. Data items in the 800 series (except Item 804) are not stored in the FRRS consolidated computer facility (CCF) data base

Item 801. Coordination Data/Remarks (60) (M)	List additional agencies with which you have coordinated, such as installations or AFCs. Enter any free text remarks appropriate for processing the assignment action. Do not enter information included in other SFAF items.

	Examples: 801. PAC021200Z AUG 94 801. GULF AFC, JIMENEZ, 12 JAN 95
Item 803. Requestor Data (60) (S)	Enter the name and DSN telephone number of the individual submitting the assignment action. *Example:* 803. TSGT BROWN, DSN: 281-3824
Item 804. Tuning Range/Tuning Increments (60) (M)	Required for CINCEUR, optional for all others. For the tuning range of the equipment, enter the lower frequency and the upper frequency (separated by a dash) with the frequency unit designator preceding the lower frequency. For the tuning increments, separate the entry with a comma and use one of the common tuning increments as follows: **Continuously tunable -** 50 kHz **10 Hz** - 75 kHz **100 Hz** - 100 kHz **500 Hz** - 125 kHz **1 kHz** - 200 kHz **5 kHz** - 250 kHz **10 kHz** - 500 kHz **12.5 kHz** - 1 MHz **20 kHz** - Crystal (not tunable) **25 kHz** - Other (explain with text) *Examples:* 804. M250-300, 100 KHZ 804. M30-75.95, 50 KHZ
Item 805. Date Response Required (6) (S)	Required for CINCEUR, optional for all others. Enter the year, month, day sequence (YYMMDD) by which either an assignment or nonassignment notification of requested frequency(ies) is required. *Example:* 805. 950615
Item 806. Indication if Host Nominations are Acceptable (60) (M)	Required for CINCEUR. Enter "YES" followed by a statement indicating band limitations and channelization requirements if host nation nominations are acceptable. Enter "NO" followed by the reason why host nation nominated frequencies cannot be used. *Examples:* 806. YES, BAND LIMITATIONS 40 - 50 MHZ 806. NO, CRYSTAL CONTROLLED

Item 807. Frequencies To Be Deleted (60) (M)	Required for CINCEUR. Enter the frequency(ies) that can be deleted upon assignment of the requested f requencies. Enter the frequency, followed by the appropriate host docket numbers or FRG case numbers and MRFL numbers, when available. Separate entries with a comma. Leave blank if no frequencies will be deleted. *Example:* 807. K14.5/USAREUR81-266/F61-836/131101

Attachment 4

OFFICES OF INTEREST

A4.1. Department of Defense Area Frequency Coordinators.

OFFICE	AREA
Western Area Frequency Coordinator Pt. Mugu, CA 93042-5001 Telephone: (805) 989-7983/7981 Fax: (805) 989-4854 DSN: 351-4854 Message Address: WAFC PT MUGU CA//AFMO//	California south of 37o30'N, including all offshore islands.
Area Frequency Coordinator State of Arizona ATTN: SFIS-FAC-SH Ft. Huachuca, AZ 85613-5000 Telephone: (520) 538-6423 DSN: 879-6423 Fax: (520) 538-8528 DSN: 879-8528 Message Address: DOD AFC AZ FT HUACHUCA AZ// SFIS-FAC-SH//	Arizona.
DoD Area Frequency Coordinator 99CS/SCXF 5870 Devlin Drive, Suite 102 Nellis AFB, NV 89191-7075 Telephone: (702) 652-3417 DSN: 682-3417 Fax: (702) 652-7354 DSN: 682-7354 Message Address: DOD AFC NELLIS AFB NV	Nevada; Utah west of 111oW; Idaho south of 44oN.
DoD Area Frequency Coordinator White Sands Missile Range, NM 88002-5526 Telephone: (505) 678-5417 DSN: 258-5281 Fax: (505) 678-5281 DSN: 258-5281 Message Address: DOD AFC WSMR NM//DOD AFC//	Colorado west of 108oW; New Mexico; Texas west of 104oW
Gulf Area Frequency Coordinator 96CCSG/SCZ 102 North Second Avenue, Suite 106 Eglin AFB, FL 32542-6837 Telephone: (904) 882-4416 DSN: 872-4416 Fax: (904) 882-8494 DSN: 872-8494 Message Address: DOD GAFC EGLIN AFB FL	Alabama south of 33o30'N; Georgia west of 83oW, south of 33o30'N; Louisiana east of 90oW; Mississippi east of 90oW, south of 33o33'N.

Eastern Area Frequency Coordinator 45CS/SCXF 1225 Jupiter Street Patrick AFB, Fl 32925-3341 Telephone: (407) 494-5838 DSN: 854-5838 Fax: (406) 494-4541 DSN: 854-4541 Message Address: DOD EAFC PATRICK AFB FL	Florida east of 83oW; Georgia east of 83oW south of 31o33'N.
Area Frequency Coordinator Atlantic Fleet Weapons Training Facility (AFWTF) Box 3023 PSC 1008 Code 017 FPO AA 34051-9000 Telephone: (809) 865-5227 DSN: 831-5227 Fax: (809) 865-5212 DSN: 831-5212 Message Address: DOD AFC PR ROOSEVELT ROADS PR	200-mile radius of Roosevelt Roads, Puerto Rico

A4.2. Army and Navy Frequency Coordinators.

OFFICE	AREA
Army Frequency Management Office CONUS AFC 2390 Liscum Road Ft. Sam Houston, TX 78234-5000 Telephone: (210) 221-2820/2050 DSN: 471-2820 Fax: (210) 221-2844 DSN: 471-2844 Message Address: AFMO CONUS FT SAM HOUSTON TX// SFIS-FAC-SC//	All CONUS except those areas serviced by DoD. Arizona and DoD White Sands Missile Range
Mid-Atlantic Area Frequency Coordinator Naval Air Warfare Center Aircraft Division 22953 Cedar Point Road Patuxent River, MD 20670-5304 Telephone: (301) 342-1532/1194 DSN: 342-1194/1532 Fax: (301) 342-1200 DSN: 342-1200 Message Address: AREA FREQCOORD MIDLANT PATUXENT RIVER MD//5.1.4A/RD66//	That area of the eastern United States and the Atlantic Ocean south of 41ON; east of a line starting at the intersection of 41ON and 75O30'W running to the intersection of 33O30'N and 83OW; north of 31O30'N; west of 68O40'W.
Navy Frequency Coordinator Eastern US Director JFMO LANT USACOM/J642 1562 Mitscher Ave, Suite 200 Norfolk, VA 23551-2488 Telephone: (804) 444-3241 DSN: 564-3241 Fax: (804) 445-9267 DSN: 565-9267 Message Address: JFMO LANT NORFOLK VA	Minnesota, Iowa, Kansas, Oklahoma, Texas, and all states east of these states.

Navy Frequency Coordinator Western US Code 521J00E Pt. Mugu, CA 93042-5001 Telephone: (805) 989-4854 DSN: 351-4854 Message Address: NAVFRCOORD WESTERN US PT MUGU CA//AFMO//	North Dakota, South Dakota, Nebraska, Colorado, New Mexico, and all states west of these states.

A4.3. Federal Aviation Administration Frequency Coordinators.

OFFICE	AREA
Federal Aviation Administration NW Mountain Region Frequency Management Officer ANM-472 1601 Lind Avenue, SW Renton, WA 98055-4056 Telephone: (206) 227-2328/2637 Fax: (206) 227-1460	Colorado; Idaho; Montana; Oregon; Utah; Washington; Wyoming.
Federal Aviation Administration Western Pacific Region Frequency Management Officer AWP-475 PO Box 92007 Worldway Postal Center Los Angeles, CA 90009-2007 Telephone: (310) 725-3475 Fax: (310) 297-0181	Arizona, California, including all off-shore islands; Nevada
Federal Aviation Administration Central Region Frequency Management Officer ACE-473 601 E. 12th Street Kansas City, MO 64106-2894 Telephone: (816) 426-5647 Fax: (816) 426-3038	Iowa; Kansas; Missouri; Nebraska.
Federal Aviation Administration Southwest Region Frequency Management Officer ASW-473 2601 Meacham Boulevard Fort Worth, TX 76193-0783 Telephone: (817) 222-4730 Fax: (817) 222-5977	Arkansas; Louisiana; New Mexico; Oklahoma; Texas.
Federal Aviation Administration Great Lakes Region Spectrum Management Office AGL-472B 2300 East Devon Avenue Des Plaines, IL 60018 Telephone: (847) 294-8472 Fax: (847) 294-7470	Illinois; Indiana; Michigan; Minnesota; North Dakota; South Dakota; Ohio; Wisconsin.

Federal Aviation Administration Southern Region Network Management Section ASO-473 PO Box 20636 Atlanta, GA 30320-0344 Telephone: (404) 305-6672/6675 Fax: (404) 305-6623	Alabama; Florida; Georgia; Kentucky; Mississippi; North Carolina; Puerto Rico; South Carolina; Tennessee; US Possessions in the Caribbean; Virgin Islands.
Federal Aviation Administration Eastern Region West Spectrum Engineering/Operations Branch AEA-470 Fitzgerald Federal Building JFK International Airport Jamaica, NY 11430 Telephone: (718) 712-8343/6884 Fax: (718) 341-4749	Delaware; District of Columbia; Maryland; New Jersey; New York; Pennsylvania; Virginia West; Virginia.
Federal Aviation Administration New England Region Frequency Management Officer ANE-471 12 New England Executive Park Burlington, MA 01803 Telephone: (617) 238-7490 Fax: (617) 238-7459	Connecticut; Maine; Massachusetts; New Hampshire; Rhode Island; Vermont.
Federal Aviation Administration Alaskan Region Frequency Management Officer AAL-473 222 West 7th Avenue, #14 Anchorage, AK 99513-0087 Telephone: (907) 271-5240 Fax: (907) 271-5900	Alaska.
Federal Aviation Administration Western Pacific Region Spectrum/Operations Section AWP-476 300 Ala Moana, Room 7116 Honolulu, HI 96850-4983 Telephone: (808) 541-1241 Fax: (808) 541-2630	Hawaii and Possessions in the Pacific Ocean.

A4.4. Federal Communications Commission Field Offices.

OFFICE	**AREA**

Allegan Field Office PO Box 89 Allegan, MI 49010-9437 Telephone: (616) 673-2063/3055	Indiana (Allen, De Kalb, Elkhart, Fulton, Federal Communications Commission Kosciusko, La Grange, Marshall, Noble, St. Joseph, Steuben, and Whitley counties);Michigan (Allegan, Antrim, Barry, Benzie, Berrien, Branch, Calhoun, Cass, Charlevoix, Clare, Eaton, Grand Traverse, Ionia, Isabella, Kalamazoo, Kalkaskia, Kent, Lake, Leelanu, Manistee, Mason, Mecosta, Missaukee, Montcalm, Muskegon, Newaygo, Oceana, Osceola, Ottawa, St. Joseph, Van Buren and Wexfor counties).
Anchorage Field Office Federal Communications Commission 6721 West Raspberry Road Anchorage, AK 99502-1896 Telephone: (907) 243-2153	Alaska.
Douglas Field Office Federal Communications Commission PO Box 6 Douglas, AZ 85608-0006 Telephone: (602) 364-8414	Arizona (all counties except La Paz and Yuma); Utah (Emery, Garfield, Grand, Kane, Piute, San Juan, Sevier, and Wayne counties).
Los Angeles Field Office Federal Communications Commission Cerritos Corporate Tower 18000 Studebaker Road, Room 660 Cerritos, CA 90701-3684 Telephone: (310) 809-2096	California (Kern, Los Angeles, Orange, San Bernadino, San Luis Obispo, Santa Barbara and Obispo, Santa Barbara, and Ventura counties).
San Deigo Field Office Federal Communications Commission Interstate Office Park 4542 Ruffner Street, Room 370 San Diego, CA 92111-2116 Telephone: (619) 467-0549	Arizona (La Paz and Yuma counties); California (Imperial, Riverside and San Diego counties).

San Francisco Field Office Federal Communications Commission 3777 Depot Road, Room 420 Hayward, CA 94545-1914 Telephone: (510) 732-9046	California (Alameda, Alpine, Amador, Butte, Calaveras, Colusa, Contra Costa, Del Norte, El Dorado,Fresno, Glenn, Humboldt, Inyo, Kings, Lake, Lassen, Madera,Marin, Mariposa, Mendocino, Merced,Modoc, Mono, Monterey, Napa, Nevada, Placer, Plumas, Sacramento, San Benito, San Francisco, San Joaquin, Sanislaus, San Mateo, Santa Clara, Santa Cruz, Shasta, Sierra, Siskiyou, Solano, Sonoma, Sutter, Tehama, Trinity, Tulare, Tuolumne, Yolo, and Yuba counties); Nevada; Utah (all counties except those listed for Douglas Field Office).
Denver Field Office 165 South Union Blvd, Suite 860 Lakewood, CO 80228-2213 Telephone: (303) 471-5605	Colorado; New Mexico; North Dakota; FCC South Dakota; and Wyoming.
Miami Field Office Federal Communications Commission Rochester Building, Room 310 8390 NW 53rd Street Miami, FL 33166-4668 Telephone: (305) 526-7420	Florida (Broward, Collier, Dade, Hendry, Lee, Monroe, and Palm Beach counties).
Tampa Field Office Federal Communications Commission Airport Executive Center 2203 North Lois Avenue, Room 1215 Tampa, FL 33607-2356 Telephone: (813) 228-2872	Florida (Duval plus all counties not covered by Atlanta, Miami, or Vero Beach field offices).
Atlanta Field Office Federal Communications Commission Koger Center Gwinnet, Room 320 3575 Koger Boulevard Duluth, GA 30136-4958 Telephone: (404) 279-4621	Alabama; Florida (Escambia and Santa Rosa counties); Georgina; South Carolina; Tennessee.
Honolulu Field Office Federal Communications Commission PO Box 1030 Waipahu, HI 96797-1030 Telephone: (808) 677-3318/3954	American Samoa; Guam; Hawaii; Mariana Islands; Pacific Trust Territories/Commonwealth; Swains Island; and Wake Island.

Chicago Field Office Federal Communications Commission Park Ridge Office Center, Room 306 1550 Northwest Highway Park Ridge, IL 60068- 1460 Telephone: (312) 353-0195	Illinois; Indiana (all counties except those listed for Allegan Field Office); Kentucky (all counties except those except those listed for Detroit Field Office); Wisconsin (Brown, Calumet, Crawford, Dane, Dodge, Fon du Lac, Grant, Green, Iowa, Jefferson, Kenosha, Kewaunee, LaFayette, Manitowoc, Milwaukee, Outagamie, Ozaukee, Racine, Richland, Rock, Sauk, Sheboygan, Walworth, Washington, Wauesha, and Winnebago counties).
New Orleans Field Office Federal Communications Commission 800 West Commerce Road, Room 505 New Orleans, LA 70123-3333 Telephone: (504) 589-2095	Arkansas; Louisiana; and Mississippi.
Baltimore Field Office Federal Communications Commission 1017 Federal Building 31 Hopkins Plaza Baltimore, MD 21201-2802 Telephone: (410) 962-2729	Delaware (Kent, Sussex, and New Castle, below the C&D Canal, counties); District of 1012 Columbia; Maryland; Virgina (Arlington, Fairfax, Loudon, and Prince William counties); and West Virginia.
Belfast Field Office Federal Communications Commission P.O. Box 470 Belfast, ME 04915-0470 Telephone: (207) 338-4088	Maine (all counties except those listed for Boston field office) New Hampshire (Coos County).
Boston Field Office Federal Communications Commission Batterymarch Park Quincy, MA 02169-7495 Telephone: (617) 770-4023	Connecticut; Maine (York and Cumberland counties); Massachusetts; New Hampshire (all counties except those listed for Belfast Field Office); Rhode Island; and Vermont

Detroit Field Office Federal Communications Commission 24897 Hathaway Street Farmington Hills, MI 48335-1552 Telephone: (313) 226-6078	Kentucky (Bath, Bell, Boonde, Bourbon, Boyd, Bracken, Breathitt, Campbell, Carter, Clark, Clay, Elliot, Estill, Fayette, Fleming, Floyd, Garrard, Grant, Franklin, Gallatin, Greenup, Harlan, Harrison, Jackson, Jessamine, Johnson, Kenton, Knott, Knox, Larel, Lawrence, Lee, Leslie, Letcher, Lewis, Lincoln, Madison, Magoffin, Martin, Mason, McCreary, Menifee, Montgomery, Morgan, Nicholas, Owen, Ownsly, Pendleton, Perry, Pike, Powell, Pulaski, Robertson, Rockcastle, Rowen, Scott, Wayne, Whitley, Wolfe, and Woodford counties); Michigan (all counties except those listed for Allegan and St. Paul Field Offices); and Ohio.
St. Paul Field Office Federal Communications Commission 696 Federal Building & United States Courthouse 316 North Robert Street St. Paul, MN 55101-1467 Telephone: (612) 290-3819/3710	Michigan (Alger, Baraga, Delta, Dickinson, Gogebic, Houghton, Iron, Keweenaw, Marquette, Menomine, Ontonagon, and Schoolcraft counties); Minnesota; North Dakota; Wisconsin (all counties except those listed for Chicago Field Office).
Kansas City Field Office Federal Communications Commission 8800 East 63rd Street, Room 320 Kansas City, MO 64133-4895 Telephone: (816) 353-3773	Iowa; Kansas; and Missouri.

Buffalo Field Office Federal Communications Commission 1307 Federal Building 111 West Huron Street Buffalo, NY 14202-2398 Telephone: (716) 846-4511/4512	New York (Allegheny, Broome, Cattaraugus, Cayuga, Chautauqua, Chemung, Chenango, Clinton, Cortland, Erie, Esses, Franklin, Fulton, Genessee, Hamilton, Herkimer, Jefferson, Lewis, Livingston, Madison, Monroe, Montgomery, Niagara, Oneida, Onodaga, Ontario, Orleans, Oswego, Otsego, St Lawrence, Saratoga, Schoharie, Schuyler, Steuben, Tioga, Tomkins, Warren, Washington, Wayne, Wyoming, and Yates counties).
New York Field Office Federal Communications Commission 201 Varick Street New York, NY 10014-4870 Telephone: (212) 620-3437/3438	New Jersey (Bergen, Essex, Hudson, Hunterdon, Mercer, Middlesex, Monmouth, Morris, Passaic, Sommerset, Sussex, Union, and Warren counties); New York (Albany, Bronx, Columbia, Delarware, Dutchess, Greene, Kings, Nassau, New York, Orange, Putman, Queens, Rensselaer, Richmond, Rockland, Schenectady, Suffolk, Sullivan, Ulster, and Westchester counties).
Portland Field Office Federal Communications Commission 1782 Federal Building 1220 SW Third Avenue Telephone: (503) 326-4114	Idaho (All counties except those listed for Seattle Field Office); Oregon; and Washington (Clark, Cowlitz, Klickitat, Skamania, and Wahkiakum 1220 counties).
Philadelphia Field Office Federal Communications Commission One Oxford Valley Office Bldg, Room 404 2300 East Lincoln Highway Langhorn, PA 19047-1859 Telephone: (215) 752-1324	Delaware (New Castle county above the C&D Canal); New Jersey (Atlantic, Burlington, Camden,Cape May, Cumberland, Gloucester, Ocean, and Salem counties); and Pennsylvania.
San Juan Field Office Federal Communications Commission US Federal Building, Room 747 Hato Rey, PR 00918-1731 Telephone: (809) 766-5567	Puerto Rico and Virgin Islands.

Dallas Field Office Federal Communications Commission LBJ Freeway, Room 1170 Dallas, TX 75243-3429 Telephone: (214) 235-3369	Oklahoma; Texas (All counties except those listed for Kingsville and Houston Field 9330 Offices).
Houston Field Office Federal Communications Commission 1225 North Loop West, Room 900 Telephone: (713) 861-6200	Texas (Angelina, Austin, Bastrop, Bexar, Blanco, Brazoria, Brazos, Burleson, Caldwell, Chambers, Colorado, Comal, De Witt, Fayette, Fort Bend, Galveston, Gillespie, Gonzales, Grimes, Guadalupe, Hardin, Harris, Hays, Jackson, Jasper, Jefferson, Kendall, Kerr, Lavaca, Lee, Liberty, Madison, Matagorda, Montgomery, Nacogdoches, Newton, Orange, Polk, Sabine, San Augustine, San Jacinto, Travis, Trinity, Tyler, Victoria, Walker, Waller, Washington, Wharton and Williamson counties).
Kingsville Field Office Federal Communicaitons Commission PO Box 632 Kingsville, TX 78363-0632 Telephone: (512) 592-2531	Texas (Aransas, Atascosa, Bandera, Bee, Brooks, Calhoun, Cameron, Dimmit, Duval, Edwards, Frio, Goliad, Hidalgo, Jim Hogg, Jim Wells, Karnes, Kennedy, Kinney, Kleberg, La Salle, Live Oak, Maverick, McMullen, Medina, Nueces, Real, Refugio, San Patricio, Starr, Uvalde, Val Verde, Webb, Willacy, Wilson, Zapata and Zavala counties).
Norfolk Field Office Federal Communications Commission 1200 Communicaitons Circle Virginia Beach, VA 23455-3725 Telephone: (804) 441-6472	North Carolina; Virginia (all counties except those listed for Baltimore Field Office).
Seattle Field Office Federal Communications Commission 11410 NE 122nd Way, Suite 312 Kirkland, WA 98034-6927	Idaho (Benewah, Bonner, Boundary, Clearwater, Idaho, Kootenai, Latah, Lewis, Nez Perce, and Shosone counties); Montana; Washington (all counties except those listed for Ferndale and Portland Field Offices).

Ferndale Field Office Federal Communications Commission 1330 Loomis Trail Road Custer, WA 98240-9303 Telephone: (206) 354-4892	Washington (Whatcom, San Juan, and Skagit counties).
Vero Beach Field Office Federal Communications Commission PO Box 1730 Vero Beach, FL 32961-1730 Telephone: (407) 778-3755/4288	Florida (Brevard, Flagler, Indian River, Martin, Okeechobee, Orange, Osceola, St. Lucie, Seminole and Volusia counties).

A4.5. Air Force Experimental Radio Stations. Space and Missile System Center
61CS/SCML
2420 Velva Way, Suite 1467
Los Angeles AFB, CA 90245-4659
Telephone: (310) 363-0398/1165 DSN: 833-0398/1165
Fax: (310) 363-5280 DSN: 833-5280

Air Force Flight Test Center
95CS/SCXF
35 North Wolfe Avenue
Edwards AFB, CA 93524-1110
Telephone: (805) 277-2390 DSN: 527-2390
Fax: (805) 277-8879/5345 DSN: 527-8879/5345

45.Space Wing
45CS/SCXF
1225 Jupitor Street
Patrick AFB, FL 32925-3341
Telephone: (407) 494-5838 DSN: 854-5838
Fax: (407) 494-4541 DSN: 854-4541

Air Force Development and Test Center
102 North Second Street, Suite 106
Eglin AFB, FL 32542-6837
Telephone: (904) 882-4416 DSN: 872-4416
Fax: (904) 882-8494 DSN: 872-8494

Air Force Phillips Laboratory
Advanced Weapons and Survivability Directorate
3550 Aberdeen Avenue SE
Albuquerque, NM 87117-5776
Telephone: (505) 846-4991/5496 DSN: 246-4991/5496
Fax: (505) 846-2630/9755 DSN: 246-2630/9755

Rome Laboratory/SC
Spectrum Manager

Rome, NY 13441-4505
Telephone: (315) 330-2259 DSN: 587-2405

RF Spectrum Management Section
88CG/SCXM
Area B, Building 676
3810 Communications Boulevard
Wright-Patterson AFB OH 45433-5706
Telephone: (513) 255-2181/DSN: 785-2181
Fax: (513) 255-1851/DSN: 785-1851

Electronic Systems Center(ESC/SCXC)
50 Griffiss Street
Hanscom AFB, MA 01731-1621
Telephone: (617) 377-7511 DSN: 478-7516
Fax: (617) 377-7516 DSN: 478-7516

99CS/SCXF
5870 Devlin Drive, Suite 102
Nellis AFB, NV 89191-7075
Telephone: (702) 652-3417 DSN: 682-3417
Fax: (702) 652-7354 DSN: 682-7354

Phillips Laboratory Geophysics Directorate
Phillips Lab/Technical Services
29 Randolph Road
Hanscom AFB, MA 01731-3010
Telephone: (617) 377-4761 DSN: 478-4761
Fax: (617) 377-4498 DSN: 478-4498

30 Space Wing
826 13th Street, Suite 402
Vandenberg AFB, CA 93437-5212
Telephone: (805) 734-8232, Ext 6695 DSN: 276-6695
Fax: (805) 734-5695 DSN: 276-9572

Arnold Engineering Development Center
350 First Street
Arnold AFB, TN 37389-3300
Telephone: (615) 454-5978 DSN: 340-5978
Fax: (615) 454-3997 DSN: 340-3997

A4.6. Military Test Ranges.

ACTIVITY	AREA OF COGNIZANCE	SERVICE
Air Warfare Center Nellis AFB NV	Entire State of Nevada, Utah west of 111oW, and Idaho south of 44oN	Air Force

Eastern Range Patrick AFB, FL	Area bounded by 24oN, 31o30'N,77oW, and 88oW	Air Force
Air Force Development and Test Center Eglin AFB, FL	Area bounded by 27oN, 33o30'N,83oW, and 90oW	Air Force
Pacific Missile Test Center Pt. Mugu, CA	Area enclosed within a 200-mile radius of the HQ Building, PMR, and the area of California south of 37o30'N	Navy
Army Electronic Proving Ft. Huachuca, AZ	Entire State of Arizona	Army
Military Ranges within the State of Hawaii	Area enclosed by 200 mile radius of Honolulu, Hawaii	CINCPAC
Atlantic Fleet Weapons Training Facility Roosevelt Roads, PR	Area within 200 nautical miles of HQ Building, AFWTF	Navy
White Sands Missile Range Las Cruces, NM	Entire State of New Mexico and other US territory within a 150-mile radius of HQ Building, WSMR, plus the area of Utah and Colorado that lies south of 41oN and between 108o and 111oW	Army

A4.7. Electromagnetic Compatibility Services. Joint Spectrum Center
120 Worthington Basin
Annapolis, MD 21402-5064
Telephone: (410) 293-2452/9815 DSN: 281-2452/9815
Fax: (410) 293-3763 DSN: 281-3763

738 Engineering Installation Squadron/EEEX
801 Vandenburg Avenue, Suite 201
Keesler AFB, MS 39534-2634
Telephone: (601) 377-3920 DSN: 597-3920
Fax: (601) 377-3956 DSN: 597-3956

Attachment 5

FREQUENCY ASSIGNMENT CLASSIFICATION GUIDE

A5.1. Security Classification . Security classification of DoD and Federal Government frequency assignments and the information in them is determined primarily by the association with the function they support. Classification of individual data items is marked according to DoDR 5200.1 and AFI 31-401.

A5.2. Individual Air Force Frequency Assignments .

A5.2.1. The following frequency assignment information, standing alone or in combination and not associated with any other assignment information, is UNCLASSIFIED. Mark these items as (U) in the SFAF.

A5.2.1.1. Overall classification of the frequency assignment (SFAF Item 005).

A5.2.1.2. Security classification modification (SFAF Item 006).

A5.2.1.3. Type of action (SFAF Item 010).

A5.2.1.4. Agency serial number (SFAF Item 102).

A5.2.1.5. IRAC docket number (SFAF Item 103).

A5.2.1.6. Assignment authority (SFAF Item 104).

A5.2.1.7. List serial number (SFAF Item 105).

A5.2.1.8. Serial replaced, delete date (SFAF Item 106).

A5.2.1.9. Docket number of older authorizations (SFAF Item 108).

A5.2.1.10. Operating frequency or frequency band and excluded frequency or frequency band (SFAF Items 110 and 111).

A5.2.1.11. Agency (SFAF Item 200).

A5.2.1.12. Command (SFAF Item 204).

A5.2.1.13. IRAC Notes (SFAF Item 500).

A5.2.1.14. Frequency action officer (SFAF Item 701).

A5.2.1.15. Control/request number (SFAF Item 702).

A5.2.2. Other assignment information, standing alone or in combination with other information (including A4.2.1. above), is classified according to DoDR 5200.1 and AFI 31-401 by the appropriate classification authority. Include the appropriate classification marking with the corresponding SFAF item.

A5.3. Lists of Air Force Frequency Assignments .

A5.3.1. Although most individual frequency assignment records in the Air Force RFA are individually unclassified, the total RFA is classified according to the highest classification level of the assignments it contains. Lists (two or more frequencies) of unclassified frequency assignment records in a given range of frequencies, or in a given area, can be classified because they may provide information

leading to the disclosure of military or national security-related operations and scientific and technological matters relating to national security. These lists can indicate the overall strategic telecommunications capabilities of the United States, and their disclosure could cause damage to national security. The continued protection of this information is essential to national security because it pertains to communications security and reveals vulnerabilities and capabilities. Its unauthorized disclosure can reasonably be expected to result in nullifying the effectiveness of telecommunications networks and the capability of the United States.

A5.3.2. The *USMCEB Security Classification Guide for Frequency Assignment Records* gives guidance on classifying compilations of frequency assignment records. Based on this guidance:

A5.3.2.1. Classify RFAs at the highest level of any individual frequency assignment it contains.

A5.3.2.2. When a RFA contains only unclassified DoD frequency assignments, it is unclassified. This type of listing contains only assignments of one agency (DoD) and was requested by DoD, meeting the criteria of both paragraphs 4.2 and 7.1.2 of the *USMCEB Security Classification Guide*.

A5.3.2.3. When a RFA contains DoD unclassified frequency assignments and unclassified assignments of one or more federal (non-DoD) agencies, the RFA is classified CONFIDENTIAL according to paragraph 4.2. of the USMCEB Security Classification Guide, unless it meets the criteria of any one of the exemptions of the USMCEB Security Classification Guide. Mark RFAs classified under this guidance according to DoDR 5200.1 and AFI 31-401:

Classified by: USMCEB Security Classification Guide for Frequency Assignment Records dated 15 Mar 83

Declassified: OADR

A5.3.2.4. An appropriate MAJCOM classification authority can classify at a higher level a RFA containing compilations of its own unclassified assignments. In such cases, the MAJCOM must notify JSC of the appropriate classifications of such RFAs. Mark the RFA according to DoDR 5200.1 and AFI 31-401 and MAJCOM instructions.